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Interim Dividends

IN view of the uncertainty of the wages position no higher interim distributions by the Southern and the London & North Eastern Railway Companies were to be expected than those made at this time last year. But a material advance in net revenues was looked for because of the rise in gross earnings, and the statements issued on Thursday and Friday last week by the Southern and the London & North Eastern Railways were discouraging. The Southern repeats its interim distribution of 1 per cent. on the 5 per cent. preferred ordinary stock, and the London & North Eastern again pays in full for the half year on the first and second 4 per cent. guaranteed stocks, holding over the question of a distribution on the 4 per cent. first preference stock and the 5 per cent. redeemable preference stock. These two stocks received 3¼ per cent. and 4 1/16 per cent. respectively for each of the whole years 1934 and 1935. Southern preferred ordinary received 5 per cent. for the whole year 1935 and 4 per cent. for 1934. The Southern interim statement shows that the higher earnings of £190,000 from passenger and goods train traffic were almost entirely absorbed by an increase of £183,000 in railway working expenditure. Net receipts from ancillary businesses were £24,000 lower, and the net revenue for the half-year is approximately £17,000 less. For the first half of 1935 net revenue was £75,000 down, but net revenue for the whole year was £21,962 up, apart from the estimated saving of £250,000 in rating payments. The London & North Eastern interim statement shows an increase in gross receipts from the railway and ancillary businesses and miscellaneous receipts of £819,100, of which £806,100 was absorbed by extra expenditure. Wages and salaries accounted for £222,300 of the increase, the main part of which was due to the placing of large orders for suitable freight rolling stock to meet the actual and prospective increase in the coal, iron, and steel trades. No credit is taken in respect of rating relief.

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Railway Valuation for Rating

On page 203 we publish the official statement, just issued, showing the result of the discussions which have taken place between the representatives of the amalgamated railway companies and representatives of the major local authorities through their associations with a view to agreeing rating assessments for the undertakings of the L.M.S.R., L.N.E.R. and G.W.R. We hope to discuss this subject at length next week. In the meantime it may be stated briefly that the effect of the arrangement is to settle until 1941 the rating liability of the three companies, subject to fluctuations in poundage. The official statement indicates that a little time must elapse before the apportionment can be made. The railway companies will be entitled to repayment from local authorities of the excess rates which have been paid, and a substantial sum is due to the companies from the Railway Freight Rebates Fund owing to the fact that payments to this fund have been on the basis of the assessment in operation from April 1, 1931, which have now to be adjusted to the net annual values agreed with the railway assessment authorities.

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The Week's Traffics

The British main line traffic returns for the past week once again show encouraging increases in all except the G.W.R. passenger receipts which, however, do not fall below those for the corresponding week in 1935. The most notable advances were in the passenger receipts of the two northern lines which probably benefited from local provincial holidays. No doubt the bad weather curtailed passenger traffic in the territories served by the Great Western and Southern Railways. The improvements in merchandise and coal receipts reflect maintenance of activity in the iron and steel, and other heavy industries. For the 30 weeks to date of the current year the aggregate increase in receipts for all four railways amounts to £2,424,000.

	30th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	+ 42,000	+ 20,000	+ 14,000	+ 76,000	+ 1,289,000	+ 3·77
L.N.E.R. ..	+ 16,000	+ 6,000	+ 20,000	+ 42,000	+ 734,000	+ 2·94
G.W.R. ..	—	+ 7,000	+ 3,000	+ 10,000	+ 286,000	+ 2·01
S.R.	+ 1,000	+ 3,500	+ 2,500	+ 7,000	+ 115,000	+ 1·01

The London Passenger Transport Board shows an increase of £15,500 for the week, and the aggregate improvement for the first month of the new financial year amounts to £42,900.

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"Railway Time" on the G.W.R.

For nearly 100 years the G.W.R. has taken a prominent part in securing the use of absolutely uniform time. Originally this was doubtless the result of the system extending from east to west and therefore being seriously inconvenienced by the differences between London and local solar time. A minute of the board of directors dated November 3, 1840, records a resolution that London time was to be adopted at all stations, and shortly afterwards this was facilitated by a note in the timetable showing the

variation in minutes between London time and solar time as shown by the local sundial. During 1852 telegraph wires were completed along the main routes of the G.W.R., and, as from November 1 of that year, time signals were telegraphed daily. Time signals are still radiated daily from Paddington throughout the system, and a further aid to absolute synchronisation is now given by the use of electrically-controlled clocks, of which there are now 730 on the G.W.R. These have been installed at such key points as Paddington, Bristol, Cardiff, Newport, Newton Abbot, Swansea, and Taunton. The chief advantages are that there is no variation in the time of any clock on any platform or in any office where the system is installed; the staff employed in working trains at or through these key points are able to adjust their watches, day or night, and so ensure a more accurate record of the timekeeping of their trains; and an appreciable saving in maintenance is effected. The most recent installation is at Bristol, Temple Meads, where no fewer than 123 clocks are on a circuit; some details of the tower clock there, where an ingenious arrangement has been adopted, are given in our Scrap Heap columns on page 180.

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Overseas Railway Traffics

Argentine railway traffic returns for the past week show a general tendency to improve on last year's figures, and the prospects for the new financial year look brighter than a fortnight ago when decreases in the weekly revenue returns were more prevalent. The Buenos Ayres Great Southern Railway, however, still continues to show a substantial decline, the receipts for the past week falling short of the previous year's figures by £14,106. In most cases, moreover, decreases in the aggregates for the first month remain to be recovered. The Canadian Pacific Railway returns continue to show a substantial improvement, and the increase in the aggregate for the first 29 weeks of the year stands at £1,183,000.

	No. of Week	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
		£	£	£	£
Buenos Ayres & Pacific ..	4th	73,361	+ 1,387	265,149	— 23,963
Buenos Ayres Great Southern ..	4th	101,288	— 14,106	377,905	— 66,636
Buenos Ayres Western	4th	36,885	+ 3,277	136,428	— 12,889
Central Argentine	4th	126,701	+ 5,608	445,834	— 42,639
Canadian Pacific	29th	492,200	+ 6,600	13,947,800	+1,183,000
Bombay, Baroda & Central India	16th	189,000	+ 17,925	2,728,800	+ 177,300

The Bombay, Baroda & Central India Railway also continues to show an increase, which in the aggregate for the first 16 weeks of the financial year amounts to £177,300.

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Not More Than Five Minutes

Announcement has been made recently by the L.M.S.R. of some remarkable punctuality achievements. During a recent four-weekly period, out of a total of 274,098 express and local passenger trains run by this company, no fewer than 262,969, or 96 per cent., reached their destinations punctually, and the figure for the express trains—93 per cent.—was the best since the formation of the L.M.S.R. in 1923. On four consecutive days the Central Division, comprising the lines of the one-time Lancashire & Yorkshire Railway, with their numerous junctions and complex routes, achieved the proud distinction of a 100 per cent. record. For this concentration on punctuality, stimulated by inter-area competitions and suitable publicity as to results, nothing but praise can be given. Its results will be even more gratifying when the basis of the calculations becomes *absolute* punctuality, for it cannot be contended in actual fact that any train arriving at its destination from 1 to 5 min. late—which entitles it on the present basis to inclusion among punctual L.M.S.R. trains—is "on time," and this permissible margin may prove a temptation to regard a few minutes out as of no importance. It would, further, be interesting to learn what measures, if any, are taken to check the accuracy of the guards' journals which furnish the material for these statistics. Sometimes, we fear, the sight of a station platform in the distance is sufficient to convince an optimistic guard, for time-keeping purposes, that his train has actually reached it.

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A Great Northern Speed Renaissance

An interesting feature of the statistics published on page 184 of this issue of the fastest scheduled railway runs in Great Britain is the number of high speed journeys now booked over what was the Great Northern main line of pre-grouping days. In the last decades of last century the Great Northern Railway held the premier place for speed in Great Britain; for example, Foxwell and Farrar, in their "Express Trains. English and Foreign," wrote in 1888, "Especially in regard to speed it [the G.N.R.] has long merited the gold medal—a fact to be borne in mind now that the recent efforts of the North Western have dazzled some observers. What the Great Northern would show if it controlled the entire road to Scotland we can only conjecture . . . in matters of speed and smartness the Great Northern has worked like an inspiriting leaven on everything it has touched." Half-a-century later history is repeating itself. Out of 1,633 L.N.E.R. miles now booked at 60 m.p.h. and over, 75 per cent. is performed over Great Northern metals, and the Great Northern section of the Southern Area provides locomotive power for 89½ per cent. of this mileage, including the Silver Jubilee workings in both directions; at 58 m.p.h. and over the corresponding figures are 72 and 83 per cent. respectively. So rapid is the march of speed that the 61·5 m.p.h. run from Darlington to York of the late North Eastern Railway, which until the war was the fastest railway run in the British Empire, and is still the fastest on the North Eastern Area of the L.N.E.R., now takes twenty-sixth place in the table.

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Railcars on the Est

Some notable additions to long-distance high speed railcar services figure in the summer timetables of the French Eastern Railway. Chief among them is a car which daily makes a round journey from Nancy to Paris and back, and does the entire journey of 219 miles in each direction without intermediate stop; this is the longest non-stop railcar run in Europe, and is allowed 3¼ hr. which works out at 67·4 m.p.h. The fastest steam-hauled express—the morning *rapide* leaving Nancy at 9.9 a.m. and also non-stop—takes 3 hr. 31 min. Another railcar makes a journey from Paris to Mezières-Charleville and back daily, leaving the Gare de l'Est at 5.6 p.m., reaching its destination, 151·5 miles distant, at 7.41 p.m., and returning at 8.55 p.m., Paris being reached at 11.25 p.m., in 2½ hr., which gives an average of just over 60 m.p.h. throughout. Only one intermediate stop is made, at Rheims, the distance of 96·8 miles between Paris and Rheims being covered in 95 min. on the outward journey and 90 min. on the return. In this case the best competing steam service takes 2 hr. 52 min. from Mezières-Charleville and 98 min. from Rheims to Paris. Various other semi-fast railcar services have also been introduced. Substantial improvements were made in the timings of steam-hauled *rapides* with the introduction of the summer services, in particular of Train No. 41, which leaves Paris at 9.30 a.m., 40 min. later than before, but regains its previous time at Belfort, and of the principal night expresses, of which No. 38 has been accelerated 95 min., reaching Paris at 7.15 instead of 8.50 a.m.

Signalling for High-Speed Services

The introduction in the United States of much faster trains, steam and diesel, during the last few years, particulars of which have appeared in our columns, has again brought under review the provision of adequate signalling and braking facilities. In many cases it has not been possible to provide the necessary braking distances, without detriment to the facilities offered to other classes of traffic, without radical alteration to the existing signalling, some of which had been in use for many years. The mere doubling of the distant indications in the two-position signal systems was insufficient, and replacement of disc and semaphore apparatus by multiple-aspect light signals has had to be put in hand. Elsewhere, routes previously unprovided with automatic signalling have had it installed. These changes have given rise to further discussions on the most suitable aspects for multiple-aspect systems where, as in and near some city areas, the signal spacing must be comparatively short and the first distant indication must be shown at the third signal in the rear, to be effective for the fastest train. This necessitates a five aspect system, a " clear " indication reading up to the fourth signal in advance at least.

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Königsberg Station, East Prussia

Königsberg now possesses one of the best stations to be seen on the Reichsbahn, from all points of view, with a very convenient arrangement of lines leading to it. The building is a fine modern structure, opened on September 19, 1929, to replace the old East and South stations. The former was originally the terminus of the Eastern Railway of Prussia, opened in 1853, while in the latter ended the Southern company's line from Pillau and Prostken. Proposals for a re-arrangement of lines were made in the late nineties, by which time the East station belonged to the State. The southern lines remained in private hands until 1903. Alterations to the old fortifications were necessary to enable the change to be made, and not until 1910 was an agreement come to between the city, the railway and military authorities; work was begun two years later. The new station, arranged for through running, was to be on the south side of the River Pregel, and the space obtained by the closing of the old stations was to be used for an improved goods station. The marshalling yards to the south were also to be reorganised. On the north side, the line to Tilsit, which first made a considerable detour to the west, and had numerous level crossings, was to be relocated, as well as a portion of the private line to Cranz, eliminating another crossing. The war and the inflation delayed these schemes for a long time, but they have at last been completed. A new swing bridge over the Pregel has been made, fitted with the latest operating and interlocking apparatus, and immediately to the north of it a new station named Holländerbaum has been constructed to replace the Lizent station, which also belonged to the old East Prussian Company.

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Control of Welding

Welding is making steady progress in railway applications, not merely as a substitute for riveting in fabrication, but to replace castings, to rebuild worn parts and repair fractures, and to join sections such as small angles which formerly called for the anglesmith's craft. The practice is extensively applied in the Chief Mechanical Engineer's department of the L.M.S.R., as was shown by the illustrated article in our issue of February 28 last which described its use in the construction at Derby of some new tank engines. On a recent visit to those works we were greatly impressed with the uniformly good results achieved by the welders. This is a tribute to the care taken not only in their training, but in checking their continued capability by means of periodical tests of sample pieces by the alternating-stress method. No less attention is paid to the materials and equipment used, and it is scarcely too much to say that such guarantees both of workmanship and quality give, without further intricate examination, assurance of results.

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Running Shed Work Systems

During the discussion in Buenos Aires on a paper entitled " The Servicing of Pooled Locomotives " by Mr. J. N. Compton, Mr. P. J. Murphy of the Buenos Ayres and Pacific Railway dealt with points relating to the scheduling of work in locomotive running sheds. Insisting on the importance of scheduled maintenance for as many parts of a locomotive and boiler as possible, he said that on his own railway a simple system had recently been introduced in which a certain number of parts, divided into groups, was examined every engine shed day. These weekly reviews had already been found to reveal faults which if left any longer would most probably have caused a failure. It might be argued that the periods of examination should be fixed on a mileage basis, as this is the most accurate way of determining the work done by a locomotive. It is, however, difficult to know at the end of a day what mileage the engine has actually done, and as the mileage lists are not usually out until a month later, the quickest way is to examine a given number of parts on every engine shed day. Until a short time ago engine examiners were employed at every shed, whose duty it was to examine the engines on arrival; these men have now been taken off, as it was found that drivers tended to neglect their own revisions when they knew there was somebody to do it for them.

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A Railway Machine Shop Problem

During the past six years the Philadelphia & Reading Railway has concentrated the major part of its locomotive repair work at Reading, Pa. About 85 per cent. of the machine tools in use there were purchased prior to or at the time the shop was built in 1905, the remaining 15 per cent. having been purchased at various times since then. Many obsolete machines have been retired and replaced by new ones, and studies since made show that on the basis of machine hours the machine tool facilities were utilised to only 35 per cent. of capacity. Herein lies an important fact in relation to railway machine tools, namely, that shops have to be equipped with many tools that cannot be used full time. Since this new machine tool equipment was installed at the Reading shops, mostly during 1935, conditions have made it impossible to operate it at anywhere near its full capacity. However, with the new equipment installed in the present programme, involving an expenditure of $227,000 (£45,219), the economies effected to date show a return of 11 per cent. on the investment. Because most of the new tools have been in service considerably less than 12 months, and have not been used to capacity, this saving indicates that many of the new tools, if operated full time, will probably pay for themselves in from 3 to 6 years. Two of the installations have, indeed, already shown economies which, on a full time basis, would pay for themselves in less than a year. An important fact is that the Reading company, in making these improvements, has profited by relatively low machine tool prices.

Railways and the Luggage Problem

MODERN fashions have helped holidaymakers appreciably to reduce the quantity of luggage necessary for a stay at the seaside or in the country, but, in spite of what some cynics may regard as the irreducible minimum having been reached, the conveyance by railway of luggage for the vast number of passengers who will shortly begin their annual vacation is still a fairly heavy task. Speaking generally, first class passengers travelling at ordinary fares are allowed to take 150 lb. of personal apparel, &c., free of charge, and third class passengers 100 lb.; the handling, stowage and conveyance of this amount of luggage for every passenger by the principal express trains would present most serious difficulties during the holiday season. Accordingly the railway companies have been endeavouring for a considerable time, and with some success, to influence the public to take advantage of the luggage in advance arrangements. Under this scheme passengers holding ordinary, tourist, monthly return or similar tickets may despatch their luggage a day or two prior to the date of their own journey at a cost of two shillings per package, which sum covers collection and delivery within areas where such facilities are usually afforded. Application to the booking office is required at least two days before the date of despatch, and passengers must produce their own railway tickets to the booking clerk or to the carman who collects the luggage.

It is not necessary that the packages should be restricted in weight to the free conveyance limit, as any additional weight is charged at the ordinary excess luggage scale. If so desired, luggage may be addressed " to be called for " at the station to which the owner intends to travel, in which case only one shilling per package is charged for collection and conveyance, and the luggage will be retained at the receiving station until it is called for. Luggage may also be brought by the owner to any station for conveyance and delivery, when a similar fee is charged. These arrangements enable passengers to travel unhampered by luggage worries, and frequently save them the cost of taxi fares, porterage, &c., while the railway companies are also enabled to forward the luggage in bulk by special parcels trains, frequently at night, thus relieving passenger platforms, staff and trains at busy periods. For the assistance of passengers with families, the railway companies also convey free, as part of the luggage, folded children's mail-carts, perambulators, cots, &c., or such articles may be sent in advance at the charges mentioned above. Luggage may also be conveyed by passengers purchasing cheap day, day or half-day excursion tickets, but the allowance is not so generous as that applicable to passengers paying higher fares, and the luggage naturally cannot be sent in advance.

Railway companies also convey the personal luggage of persons travelling by other means of transport, but in such cases the ordinary parcels charges are applicable, which vary according to weight and distance. Facilities are also provided for the conveyance in guards' vans of dogs accompanying passengers, and return tickets may be obtained at the single fare, the rates varying from 2s. per dog for a distance between 30 and 50 miles, to 6s. for distances between 150 and 200 miles. In such cases the dog's ticket is available for the same period as that of its owner, but this concession is, for obvious reasons, limited to a maximum of three dogs per passenger. Return tickets at the single fare are also issued for bicycles, motor cycles, children's mail carts and perambulators, not folded, accompanying passengers, a concession which has proved very valuable to tourists. It may be mentioned, however, that under the Carriers' Act, 1830, as amended by subsequent Acts, the railway companies are not liable for the loss of, or injury to, certain valuable articles such as gold and silver, jewellery, precious stones, and furs, when the value of such articles in any one package exceeds £25, whether the luggage accompanies the passenger or is sent in advance, unless the value is declared at the time of despatch and an increased charge paid for insurance in accordance with a published scale. Further, the companies do not accept liability for any fragile or brittle articles which may be packed in luggage. Facilities are, however, provided at most railway booking offices whereby luggage, whether accompanying the owner or not, may be insured with an insurance company at a trifling charge which, in many cases, covers the owner against loss or damage during the whole of his holiday.

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Austrian Federal Railways

THERE was practically no change in the traffic and financial position of the Austrian Federal Railways in 1935 compared with 1934. The total revenue increased by 0·5 per cent. to 428,638,328 schillings, but the operating expenditure rose by a like proportion to 449,028,903 schillings, the operating ratio being 104·8. The operating deficit was thus 20,390,575S., an increase of 1·1 per cent., but the total deficit including depreciation and financial charges was 68,943,558S., which sum was a reduction of 5·1 per cent. on the previous year's figure. The number of passengers carried decreased by 1·9 per cent. to 54,414,485 of which no fewer than 53,769,889, or 96·82 per cent., were third class. Since the formation of the Federal Railways after the war, the percentage of third class travellers to the total number carried has never been less than this. The passengers and parcels receipts fell by 0·7 per cent. to 137,880,074S., the disproportionate fall in the receipts compared with the number of passengers carried being due mainly to an increase in the average journey from 38 to 39·7 km. The number of passenger-km. rose by 2·6 per cent. to 2,163 million. Since the end of 1932 the freight traffic has increased slowly but steadily, and during 1935 the paying tonnage advanced by 3·7 per cent. to 20,200,000 tons and the average journey per consignment from 139·2 to 139·5 km. The freight receipts increased by 1·1 per cent. to 274,359,569S., but the earnings per freight train-km. increased only by 1·0 groschen to 18·48S. The total freight tonne-km. amounted to 2,811 million. Freight traffic to Germany, Czechoslovakia, and Italy continued on the up-grade, but the increased traffic both within the country itself and to the three countries mentioned above was principally in minerals and construction materials, and the traffic in potatoes, other foodstuffs and general merchandise decreased.

The length of line owned remained the same at 4,485 km. and the length of line operated to the account of the Federal Railways at 5,529 km. this total including the old Sudbahn. In addition, 390 km. of private line were operated for the owners. The above lines are worked by 2,130 steam, 218 electric, 2 diesel, and 2 petrol locomotives; 10 steam, 17 electric, 22 diesel, and 25 petrol railcars; 7,151 coaching vehicles, and 30,883 goods wagons. Compared with 1934 the staff has been reduced from 56,420 to 55,899, or 9·7 persons per route-km. of line, but the staff salaries and wages bill remains at 195,000,000S., and the pensions bill has gone up by 1·7 per cent. to 141,000,000S. The operating expenditure of 449 million schillings is made up of the two foregoing items, and of national insurance 11·3 million, locomotive fuel 21·1 million, materials 55·5 million, general expenses

14·8 million, and contribution to interest and depreciation charges 10·3 million schillings. The length of electrically-worked line increased by 34 km. to a total of 899 km. by the opening of the south bank of the Tauern line from Mallnitz to Spittal-Millstattersee. Although the energy consumption increased by 4 per cent. to 142·8 million kWh. there was a fall in the energy cost of 13·3 per cent. to 10·29 million schillings, corresponding to 7·2 gr. per unit including financial charges on the railway power stations, which contributed over 75 per cent. of the total power.

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Express Fruit Services in Germany

DURING the last few years successful efforts have been made to increase the cultivation of high class fruits in certain districts in Germany, but the latter are in many cases situated a long distance from the larger centres of consumption, so that the provision of satisfactory transport facilities forms an essential part of the scheme. How this has been achieved is the subject of a recent article in *Die Reichsbahn*. The German State Railway has for some time given close attention to the problem, and has spared no expense to meet the fruit growers' requirements. Good results were achieved with the traffic from Baden, the Palatinate, Hesse, and the Rhine Province to Munich, Nuremberg, and the Rhine and Wupper Valleys, where there was no difficulty in bringing the fruit on the market early enough on the morning after despatch, and yet allow enough time for efficient packing and for the senders to study the market prices and prospects before despatch. The services to Central, East, and North Germany, however, were not as good as could be wished, delivery not taking place until the second day in many instances, a great disadvantage in the case of highly perishable fruits like cherries and strawberries. Several merchants attributed their poor sales to this fact. A late arrival on the next day is also equivalent to a day lost, with trains formed of the ordinary goods wagons it was impossible to cover such distances as Bühl to Berlin or Hamburg, about 700 km. (435 miles), in the time desired.

As part of its acceleration policy the Reichsbahn had some special goods wagons built in 1933 and 1934 intended for attaching to passenger trains, or forming in special through goods trains running up to 90 km.p.h. (56 m.p.h.), and a trial was made of a so-called fruit express (*Obstexpress*) for the cherry and strawberry traffic from Baden to Berlin, with connection from the Palatinate, and one to Hamburg at Bebra; special local transport facilities were provided to bring the fruit to the stations. The train left Bühl, in Baden, at 2.35 p.m. reaching Berlin at 3.38 a.m., and Hamburg at 2.53 a.m., so serving the early markets also at Leipzig, Halle, Magdeburg, Hanover, Brunswick, Bremen and Altona. By means of suitable connections a whole day was gained to East Prussia, a consignment leaving Freiburg (Breisgau) at 11 a.m. reaching Tilsit at 5.0 p.m. the next day, a run of 1,540 km. (956 miles) in 30 hours. The new service met with enthusiastic approval in most quarters. The fruit arrived in excellent state, waste was cut to a minimum, sales were increased, and the farmers were able to extend their cultivation and obtain quicker returns on their money.

The question of rates needed careful consideration. As a rule fresh fruit and vegetables are conveyed by the Reichsbahn as express goods at a special rate practically equal to ordinary goods charges, but it was not possible to allow this for these special trains, and the express tariff was applied. Nevertheless, fresh fruit and vegetables enjoy a reduction under this, making the charges about 50 per cent. above the ordinary ones for this traffic. A thousand kilos. (19·5 cwt.), are conveyed from Bühl to Berlin for Rm. 95, against Rm. 66 by ordinary services. The latter rate, in any case, has applied generally only since 1932. Before that it applied only to passenger train consignments up to a distance of 300 km. (186·4 miles). In the last few years express goods rates have been much reduced. Thus for 100 kg. (1·9 cwt.) there was a drop of Rm. 9 to 12 between May, 1932, and January, 1933, varying with the distance.

Nevertheless, all traders did not take kindly to the charges for the new services, some declaring the trade could not bear them, at least for some classes of fruit. The rule applying to express services, that the charges must be paid on despatch, was also complained of, but the management adhered to its decisions. The extra charge for an 11-lb. basket of strawberries is only 21 pfennig for the entire run from Bühl to Königsberg. The new service ran on 45 days in 1934 and 37 days last year, and large numbers of small fruit growers brought their goods to the stations. The weather did not favour the strawberry crop in 1934, but in 1935 the traffic was much better, furnishing 1,089 wagon loads. On June 18 last year there were 68 wagons despatched, 35 of them to Berlin, and the train was several times run in two portions. A connecting train from Coblenz was also put on. To advertise the services special pamphlets have been distributed, with the title, " Rivalling the Express Passenger Train," giving full details. The Reichsbahn commercial department is understood to be fully satisfied with the results to date and it is satisfactory to find the objections to the charges, &c.; dying down. A larger area is already under cultivation and prospects appear good.

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The Turbine Locomotive Criticised

THE opinion is widely held that the application of the turbine principle to a railway locomotive loses much of its value if the turbines are of the non-condensing type. On the other hand, there are many who believe that an essential and by no means small proportion of the advantages sought can be achieved without the aid of a condenser, and they stress the universally admitted necessity for keeping down total weight and also first cost and maintenance charges as low as possible. It is, of course, incontestable that condensing apparatus is heavy and expensive to construct and maintain. When we were commenting upon the turbine locomotive placed in service about the middle of last year on the L.M.S.R. we dealt with these points editorially and pointed out the difference between locomotive conditions and those of stationary plants. Just recently, in perusing a lengthy paper dealing with many aspects of locomotive construction read by Mr. A. Lipetz, Chief Consulting Engineer of the American Locomotive Company, in the early part of the present year, we noted with interest what the author had to say on this aspect of the turbine locomotive. He approached it in the thorough manner characteristic of him, showing that, as a result of considerable thought, he had arrived at some fairly definite conclusions, which he proceeded to lay before others for their consideration and opinions.

We are, of course, at one with the author when he says that the main reason for the low efficiency of the steam locomotive is the steam cycle, with its limited initial steam pressure and exhaust into the atmosphere. In order to raise the efficiency it is necessary to increase the admission pressure or, in other words, raise the boiler pressure; either this, or to lower the exhaust pressure by exhausting the steam into a vacuum condenser. Both

methods have been tried, and have resulted in locomotives having either high-pressure boilers, or vacuum condensers. There are, Mr. Lipetz states, several reasons for the failure of the condensing turbine locomotive. The first is a fundamental one, namely the inherent unsuitability of the turbine to work at variable speeds, and, if directly coupled to the locomotive wheels, which run at different speeds, it cannot be economical. The efficiency curve of a turbine has a parabolic shape with zero value at zero speed, maximum value at the optimum speed and again zero value at some higher speed, approximately double the optimum. Ljungstrom and Zoelly realised this fact and the former even shaped his blades so as to flatten the efficiency curve as much as possible; neither of them, however, would seem to have realised the extent to which the speed on a railway varies. Shunting work at a station or in a yard with a few vehicles, if performed by a turbine train locomotive, might wipe out all the economy obtained during the trip, and frequent stops and starts would act likewise. Ljungstrom investigated in his laboratory every detail of his turbine locomotive, but he may not have investigated the railway operating characteristics, which are no less important. His research work was some of the most elaborate ever done in railway engineering, but still it was incomplete in that he overlooked the fact that the reciprocating engine of the conventional locomotive is better adapted to speed variation than the turbine, and that in this adaptability lies one of the secrets of its success.

The second reason is also a fundamental one although not as grave as the first, namely the fact that the turbine is not reversible; this is another of its disadvantages as compared with the reciprocating engine. For reversing, an idle pinion must be inserted in the gear between the turbine and the jackshaft or the first driving axle. This method has been worked out accurately by Ljungstrom and seems to have given satisfaction; it is, however, a complication which adds weight and costs money. Another method of reversing uses a special reversing turbine which is provided in the gear, when necessary, by means of a clutch. There is a third method—used on all German turbine locomotives—in which the reversing turbine is set rigidly on the shaft of the forward turbine and runs with it all the time, but in vacuum when the forward turbine runs under steam and *vice versa*. This scheme is less efficient as some power is absorbed by the reversing turbine running continuously in a rather imperfect manner. Thus the more revolutionary changes in steam locomotive construction, in the direction of the latest improvements of stationary plants, have accomplished little, and the view is held that only the more modest innovations along these lines are likely to prove successful on locomotives, and even they must be introduced gradually and subjected to exhaustive trial.

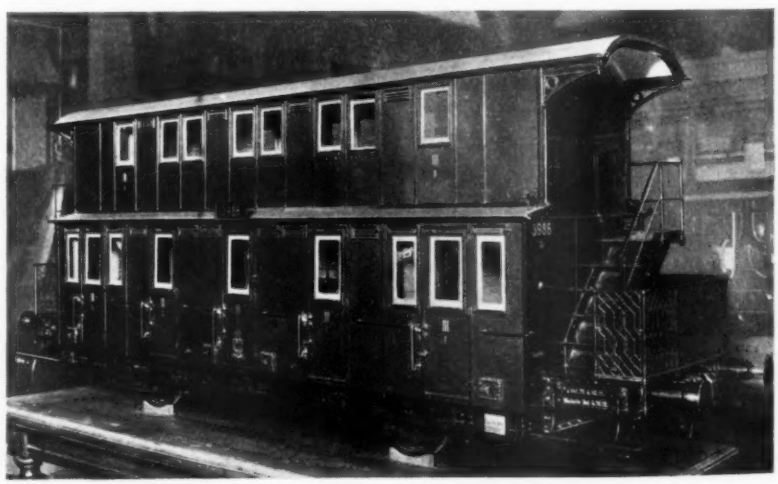
Double-Deck Railway Carriages

The introduction on April 7 last of double-deck passenger rolling stock on the Lübeck-Büchen Railway has focussed attention once more on a practice which has been tried in various parts of the world from the earliest days of railways. Double-deckers were used by the Baltimore & Ohio Railroad more than 100 years ago, but their extended adoption chiefly for heavy suburban traffic, dates from the 'eighties. Probably the earliest "modern" use was on the old Western Railway of France (now Etat) in 1879, where they were adopted for Paris local service to avoid lengthening of platforms.

Shortly afterwards, Berlin took a similar step, and alongside we reproduce a photograph of a model in the Verkehrs- und Baumuseum showing a model (3986) which carries on one of the longitudinal beams of the frame the inscription "last overhauled on 4.10.1911." It appears from the card attached to the model that the carriage was constructed at the Tempelhof works and cost 2753·16 Marks. We understand from a German correspondent that it was last used to convey Berlin workmen between Grunewald and Westend. He also states that double-deck carriages ran—along with those of ordinary type—from 1880 to 1900 on the Berlin Ringbahn; they were employed, chiefly in rush hours, as the platforms were too short to accommodate longer trains.

Double-deck carriages were also used on the Altona-Kiel Railway, where, as in Berlin, the floor was dropped abnormally low down and extra wide footboards were provided for the lower deck, to facilitate entering and alighting. The springs were arranged under the axle boxes. In addition, double-deck carriages were used on the former Prussian Light Railway from Offenburg to Frankfort (Main) from 1880 to 1905 or 1906; and on the old Hessischen Ludwigsbahn, or Riedbahn, between Frankfort, Biblis, and Mannheim until 1907, and until 1895 on the local section between Goldstein and Frankfort also.

Within recent years double-deckers have been used on the Paris suburban lines of the Est and Etat (see our issue of June 9, 1933, pages 759, 777, and 778); from and to New York on the Long Island Railroad in the U.S.A. (see our issues of September 23, 1932, page 369, and June 9, 1933, page 777); on Cape Town suburban routes of the South African Railways (see our issue of September 16, 1927, page 340); on the Swiss Federal Railways, as sleeping cars (see our issue of April 27, 1934, page 718); and, of course, on the Lübeck-Büchen Railway (see our issue of May 22, 1936, page 1003). All these are standard gauge lines, with the exception of the South African Railways; the last-named provide the only example we can recall of the use of double-deck carriages on the 3 ft. 6 in. gauge.



Model, in the Verkehrs- und Baumuseum, Berlin, of a double-deck coach as used on the Stadtbahn. The inscription indicates that the vehicle was last overhauled in 1911

PUBLICATIONS RECEIVED

Economic Principles of Transportation. By W. T. Jackman. London: Humphrey Milford, 11, Warwick Square, E.C.4. Toronto: The University of Toronto Press. 9¼ in. × 6¼ in. × 1½ in. 891 pp. Price 21s.—Prof. Jackman is well known to students of railway problems through his earlier works on "Transportation in Modern England" (reviewed in THE RAILWAY GAZETTE of February 1, 1918, at page 122) and "Economics of Transportation" (reviewed in THE RAILWAY GAZETTE of May 20, 1927, at page 645). His occupation of the Chair of Transportation in the University of Toronto has given him a thorough insight into railway conditions in Canada and in the United States, which are practically a unit in the matter of transport.

The work now under review is based upon "Economics of Transportation," but has been largely re-written on account of the many changes which have since taken place in world conditions, and especially in transportation, such as the increasing competition of road motor vehicles for the best-paying freight traffic, the development of inland water facilities, and the extension of air travel. Railway development in Canada is treated in 48 pages of the first chapter. Next follow chapters dealing with physical factors in railway operation, and with income and expenditure. There are then seven chapters dealing with the principles and practical aspects of rate making. Discrimination in rates forms the subject of the eleventh chapter. Three more chapters are devoted to rate structures either in the U.S.A. or Canada. Transportation rates and prices, special services of railways, and express service and rates are next considered. In discussing the functions and work of the Board of Railway Commissioners for Canada the author goes fully into the possibilities of international control of rates on traffic passing between Canada and the U.S.A. Many suggestions have been made and found to be impracticable. In the author's opinion the best plan for such control would be to have some system of co-operation between the Dominion Board of Railway Commissioners and the Interstate Commerce Commission.

Chapter 18, on Government ownership of railways in Canada, gives a review of the events leading up to the formation of the Canadian National Railways which should be invaluable for future reference on this most complicated subject. In the next chapter, on "Government Ownership—Recent Developments," Prof. Jackman calls attention to the contradictory nature of the legislation of 1933 which followed the publication in 1932 of the "Duff Commission" report. It requires the continuation of competition between the Canadian Pacific and the Canadian National, while making it obligatory for them to co-operate for the elimination of waste. "These two railways, serving largely the same territory, cannot compete and also co-operate to any significant extent. These two economic attitudes are in violent contrast. It would be difficult enough to bring this about if both were privately-owned, although under this condition both roads would be acting with the same motives. It is not so, however, in the case of the two Canadian roads; for the Canadian National, being a Government-owned road, is subject to political influences continuously, while the Canadian Pacific has no connection with political forces." Prof. Jackman would favour unified operation—as distinct from amalgamation—of these two systems under private ownership, the net income thus obtained by economy of operation to be divided between the two companies.

Inland water transport is discussed in Chapter 20. When dealing with highway transport the author calls attention to the evil effects of the present want of regulation of road motors in regard to freight traffic. "The motor trucks, varying their rates at will, with no obligation to publish and maintain their rates, with no duty to charge like rates for like service, are bringing back the old evils of secret rates, unjust discrimination, personal preferences, working one off against another, until in some industries the resulting disorganisation and confusion have become serious." The author proposes a regulative board of three competent men, to see that the relatively few highway carriers needed should operate in accordance with the public welfare, and that the policy of this board should be determined in conference with the Board of Railway Commissioners.

We can thoroughly recommend this book, particularly as an authority on Canadian railway conditions.

Société Nationale des Chemins de Fer Vicinaux : Cinquantième Anniversaire, 1884-1934. Brussels: Published by Goemaere, 21, Rue de la Limite, on behalf of the société. 10¾ in. × 7½ in. 116 pp. of text. Illustrated with inserted art plates. No price.—Belgium has developed the light railway—or, rather, has used the light railway for rural development—to a far greater extent than any other country, and therefore particular interest attaches to this jubilee commemorative volume of the company entrusted with the work of building and financing the system. As the title indicates, the actual jubilee occurred in 1934, but more than 18 months elapsed before the volume was completed, and it was not published until the early part of the present year.

The book is divided into two main parts, namely, historical and commemmorative. The historical section, to which 61 pages of text are devoted, begins with the foundation of the company by an Act of May 28, 1884, and the reasons which led to its formation. Although many years had been devoted to the consideration of the best means to promote rural light railways, once the policy had been fixed and the company was formed, no time was lost in getting to work. The first two lines to be completed were: Ostend-Nieuport (opened on July 15, 1885) and Antwerp-Hoogstraeten (opened on August 15, 1885). Even before any mileage was working, the company had stated in its first report that plans were in hand for 771 km. of light railway. Steam remained the sole motive power until 1894, in which year more than 1,200 km. were at work. Then, on October 1, 1894, electric traction was inaugurated on a Brussels suburban line (Place Rouppe to Petite-Espinette), but electricity made only slow progress until after the war.

Between the text and certain tables and graphs there are slight discrepancies in kilometrage figures, probably accounted for by the difference between calendar and financial years. Total mileage has risen steadily throughout the whole period of 50 years, and until 1929 steam-operated mileage also rose, but with a marked slacking-off from 1913 onwards. During the five-year period 1929-1934, steam shows a slight decline and electricity a sharp rise. The totals in 1934 are given as 1,246 km. electric; 3,880 km. steam and railcar; and 5,126 km. total.

The second part of the volume gives the text of speeches made at the jubilee meeting on June 12, 1934, when the King of the Belgians was present; and also the addresses at the inauguration of the jubilee memorial plaque at the head offices of the company. The text is interspersed throughout with art plates giving portraits of past and present officers; illustrations of old and new rolling stock; and graphs.

An Electric Signalling Lamp.—We have received from Lamp Manufacturing & Electric Supplies Limited an illustrated catalogue dealing with the Adlake electric signalling lamp—now manufactured by the firm at Birmingham. The London office of the company is at River Plate House, Finsbury Circus, London, E.C.2. This lamp, which was originally made in America, has a beam of exceptional intensity, with a natural spread of about 4 deg., but this may be increased as desired for use on curved track by fitting alternative cover glasses. For close-up indications, a cover glass giving a deflection of 25 deg. is supplied, and, on being rotated, projects the beam in the required direction. Twin-filament bulbs are used, so that the relay can be dispensed with if it is not desired to repeat the lamp. Alternatively, the relay can be used to indicate the failure of the main, or of the main and auxiliary, filaments. The Adlake lamp is suitable for mounting on the oil lamp brackets of ordinary semaphore signals. The cover glasses can also be supplied in the usual signalling colours where it is desired to use the lamp independently.

THE SCRAP HEAP

NEGUS DRIVES NEGUS

SIR,—I wonder how many passengers travelling by the 9.30 a.m. train from Worthing to Victoria last Friday (July 24) realised that there was a Negus driving the train and a Negus (Emperor of Abyssinia) riding as passenger behind him!—*A letter to the Editor of the "Daily Mail" from Mr. J. Negus, of Worthing (Son of the Driver).*

* * *

Under the heading of Prospectuses Received, *Herapath's Railway Journal* of May 18, 1861, chronicles the following:—

"DONKEY EXPRESS (LIMITED).

We have received five copies of this prospectus from some ass."

* * *

The revival of British railways in the last few years has been impressive tribute to an initiative which had been stagnant for many years. The revival of railway travelling and the inducements to prefer the iron road to the highway have proved that people still appreciate comfort and speed.—*From the "Sussex Daily News."*

* * *

BRISTOL STATION TOWER CLOCK

Bristol, Temple Meads, is now a "one time" station. At ten o'clock on Monday morning last, July 27, the big clock in the tower, which has been kept two minutes fast, recorded "right time" for the first time as far as memory serves. It is now connected to the circuit controlling the 123 other electrically-operated clocks on the platforms, in the refreshment rooms, offices, locomotive sheds, and signal boxes, which have been installed as part of the Temple Meads reconstruction scheme. All these clocks are controlled by a small master clock, checked daily with Greenwich by a time signal radiated throughout the system from the G.W.R. headquarters at Paddington.

The tower clock is worked by what is known as the "waiting train" movement which has replaced the clockwork mechanism that has operated the clock since it was installed when the tower was built in 1877. This movement is worked by a heavy electrically-driven pendulum which drives the minute hand through half a minute space on the dial in approximately 27 sec. The hands are then automatically locked, and released only when the half-minute impulse is received from the master clock, so that any loss or gain is rectified every 30 sec. In this way the rather prominent "jump" which would otherwise be given to the hands of such a large clock if moved forward only at every half-minute, as in the case of the other clocks in the circuit, is avoided. The face of the clock is 7 ft. in diameter. Bolder hands and a specially designed reflector, made at the G.W.R. Reading signal works, have been fitted to improve its visibility by day and by night. The hour hand is 1 ft. 11 in. and the minute hand 3 ft. 4 in. long.

* * *

No guests should be more welcome than the men and women of other nations who visit us for their holidays. Are they going to receive the very best welcome we can give them? By general consent, the railways give them a good start. The Customs officers reserve their rudeness for their own nationals: and the railway officials are wonderfully efficient and patient.—*From the "British Weekly."*

* * *

To hold traffic we need perfect services, and these require your co-operation.

These posters suggest weaknesses in working which you can help to remedy.

KEEP THE GANGWAYS CLEAR

This is a Goods Shed, not an Obstacle Race.

No. 2 of a series of "claims prevention" posters recently issued by the Chief Goods Manager, Great Western Railway, for exhibition to the staff

* * *

AN EARLY COMBUSTION CHAMBER

Combustion chambers, at least so far as English locomotive practice is concerned, are apt to be regarded as something quite modern. But 60 years ago the Great Eastern Railway experimented with one, known as the Weston patent boiler. It was fitted for two years, 1876-78, to No. 492, an 0-6-0 engine delivered by Beyer, Peacock & Company in 1872 to the designs of Mr. S. W. Johnson. The combustion chamber was elliptical in shape, 2 ft. 6 in. deep, and extended into the barrel for a distance of 4 ft. 7 in. The tubes were only 5 ft. 8½ in. long, compared with about 10 ft. 3 in. before rebuilding, and the boiler barrel was tapered from the normal 4 ft. at the smokebox to 4 ft. 7½ in. at the throatplate, the taper all being at the top as in the present G.W.R. engines. When the Weston boiler was taken off No. 492 in 1878 it was used as a stationary boiler.

* * *

THE ROMANS HAD A WORD FOR IT

Not only was the principle of the internally-fired boiler known and applied by the Romans at least as far back as the First Century A.D., they also invented the water-tube firebox. In a domestic boiler, dug out of the ruins of Pompeii not so very long ago, the internal firebox had five cross-tubes to increase the heating surface. The tubes in question formed the bars of the grate, on which the charcoal fire rested, and communicated at each end with the water in the boiler, which completely surrounded the firebox. Firing was accomplished through the top of the central flue, which curved and emerged from the boiler shell at one side. The boiler itself stood on legs, and bore a strong outward resemblance to a funereal urn, which was enhanced by a subdued amount of decoration and the fact that it was composed of green bronze. A facsimile of this interesting boiler may be seen in the Science Museum, South Kensington. It is in a glass case at the western end of the gallery devoted to pumping machinery and sanitary engineering.

* * *

According to the *Morning Post*, a driver on the Eastern Bengal Railway has seen a monster striding alongside the railway track. Other stories tell of a cowherd near Jalpaiguri who died of fright after encountering a giant man, whose footprints were subsequently measured as 22 in. × 11 in. × 6 in. deep—with a stride of a being 18 ft. in height—by a railway engineer. In neither case is the time of the day mentioned.

* * *

The public is respectfully informed that the most direct, safe, and expeditious route to Southport, is by railway to Newton, where a superior LIGHT POST COACH waits daily to convey passengers to Southport, through St. Helens and Ormskirk.—By this conveyance all that frequent change from one railway to another, and the consequent risk of passengers' luggage, is avoided, and there is the privilege of journeying by the first class train.—Book at Manchester for the two o'clock train.—Also a PATENT SAFETY COACH, every day, from St. Helens to Southport, on the arrival of the twelve o'clock second class train from Manchester.—Passengers for this coach must book for the twelve o'clock train, and be particular in having proper tickets presented to them when booking at the Railway.—

Be sure to ask for
BRETHERTON, STRANGE, and
COXON'S Coaches.

Their coach from Liverpool to Southport every afternoon at four o'clock, as usual winter and summer.—*From the "Manchester Guardian," June 25, 1836.*

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

SOUTH AFRICA

Financial Results, 1935-36

The results of working for the financial year ended March 31, 1936 show a surplus of £3,245,724 of revenue over expenditure after allowing for special appropriations of £800,000 to betterment fund, £487,000 to deficiency in Pension and Superannuation Funds, £1,000,000 to Rates Equalization Fund, £168,818 responsibility allowance and £400,000 to writing out of capital account discount and expenses on pre-Union capital. The surplus brought forward at the end of March, 1935, was £379,431, making a gross surplus of £3,625,155. Of this amount £3,500,000 will be disposed of as detailed in THE RAILWAY GAZETTE of April 10 and the balance of £125,155 will be carried forward. Revenue from transportation services for the year totalled £30,049,854, an increase of £3,028,040 on the previous year. Railway working expenditure increased from £18,341,222 to £19,657,616.

Headquarters Offices Extension

Work will begin in August on the new wing for the headquarters offices at Johannesburg. This extension increases the office accommodation in the block to approximately 400 offices. Double-storey garage accommodation will be provided in the quadrangle for 100 cars. The cost of these additions will be about £65,000.

Catering Supplies of the Highest Quality Only

To ensure that only South African products of the highest quality shall in future be used for the catering services of the railways, an arrangement has been made between the Railways and the Agriculture & Forestry Departments, by which experts from the latter will make surprise inspections of perishable supplies for the former, and will also judge and select fruits, wines, spirits, &c., for bulk supplies under contract. Not only will this benefit the railway catering, but it will also place the best samples of the products of the Union before tourists and traders visiting South Africa and be a good advertisement for them throughout the world.

URUGUAY

Proposed Unification of Transport for Montevideo

According to press information from Montevideo, the Municipality of that city is considering a scheme for the unification of all the urban passenger transport concerns, presumably on lines more or less similar to that proposed for Buenos Aires. The scheme, as outlined in the press, provides for the formation of a corporation composed of the Municipality and the Commercial Society of Montevideo, to take over and operate all the tramways and omnibuses, in addition to establishing a special system of trolley-buses. The proposed corporation would acquire all the rolling stock belonging to the omnibus companies, the staff of which would be retained in their present posts.

ARGENTINA

Transport Co-ordination Bills and the Senate

It appears that the Legislative Committee of the Senate, after receiving numerous petitions from various interests more or less concerned with one or other of the Transport Co-ordination Bills, decided to issue a questionnaire [referred to on page 1201 in our issue of June 26—ED., *R.G.*] to the various railways, tramways and other transport concerns. The idea in issuing this questionnaire was ostensibly to ascertain opinions regarding the Bill as passed by the Chamber of Deputies in September last, and outlined in THE RAILWAY GAZETTE of November 15, 1935, and also to obtain suggestions as to what the various concerns consider to be the best solution of the problem generally. As however the Transport Co-ordination Bills have been before Congress for nearly four years, during which time they have been studied and debated from every angle, it is difficult to understand exactly what useful purpose a referendum of this nature can actually serve. On such a contentious question, where so many divergent interests are involved, it is manifestly hopeless to expect any unanimity of opinion, and it therefore looks as though the committee of the Senate will be faced with the almost impossible task of endeavouring to reconcile and co-ordinate a medley of conflicting views and suggestions, without making much progress towards a solution of the problem.

Delay Favours Road Interests

As originally drafted, neither the National nor the Urban Transport Co-ordination Bill was regarded as a satisfactory solution of the problem from the standpoint of either the railways or the tramways, but both were accepted by them on the principle of "half a loaf . . . ," in the hope that later they would be substantially amended in certain details. Since then, however, both measures have suffered considerable pruning, in order to satisfy the demands of the road motor interests, and any further whittling down of their provisions will undoubtedly rob them of whatever usefulness they originally possessed. Obviously, the only entities who have anything to gain by delay are the motor transport companies engaged in the conveyance of either passengers or goods, and by them the prospect—which at present seems likely—of the two Bills being held up in Congress for at least another year will doubtless be hailed with the greatest satisfaction.

B.A.G.S. Railway Telegraphs Appeal

As announced in THE RAILWAY GAZETTE of February 7 last, the B.A.G.S.R. appealed to the Courts in an effort to obtain the annulment of the decree suppressing railway telegraph offices in places where there is a P.O. service, on the grounds that such a measure was unconstitutional. The Federal Attorney, Dr. González, has now given his decision, advising the rejection of the appeal on the grounds that the Government is within its constitutional rights in regulating the law in such cases. The Federal Attorney also points out that the resumption by the Government of a public service, authorised by legislative permission, involves no liability for indemnification, and that such permission does not constitute a vested interest. It is expected that the appeal will now go to the Supreme Court.

B.A. Association of the Institution of Civil Engineers

A meeting of the above association, held in Buenos Aires on June 10, was a students' evening. Four ten-minute papers were read by the following students of the Institution:—

Messrs. J. E. Bridger (B.A.G.S.R.): on "Pumping Tests and Methods of Measurement of Consumption of Water at Locomotive Watering Stations"; D. D. Godfrey (B.A.G.S.R.): "Notes on the Earthworks on the Pilcaniyeu–Bariloche Extension"; B. W. Moeller (B.A.G.S.R.): "Dredging of the Port and Filling in of the Land in Ingeniero White and Galvan"; C. S. Willey: "Notes on Water Supply."

Mr. John H. Taylor, M.Inst.C.E., Chairman of the Association for the current session, presided.

Buenos Aires Provincial Railway

The Minister of Public Works of the Province of Buenos Aires (Engineer Bustillo) recently made an inspection of the Provincial Railway, accompanied by the General Manager (Engineer Vicente A. Suarez), the Director of Roads (Engineer José L. Negri) and other Government officials. During the tour, which lasted four days, Engineer Bustillo visited every station on the line for the purpose of investigating the conditions and methods of working, and receiving suggestions from local residents for improving the railway service. With the aid of the information thus acquired the Minister hopes to be able to introduce a number of reforms into the working of the railway, which, it is hoped, will result in the gradual liquidation of the deficit

that has been accumulating over a series of years. The question of providing additional approach roads to stations is said to be engaging the attention of the Roads Board officials, and plans for the construction of new roads are being prepared.

CANADA

New Streamlined 4-8-4 Locomotives on Trial

No. 6404, the last of the five new streamlined 4-8-4 locomotives for the Canadian National Railways [described and illustrated in our issue of June 26. —ED. *R.G.*], has now been turned out of the Montreal locomotive works and is undergoing trials. As in the case of her sister engines these trials were carried out in the first instance on freight runs with gradually increasing loads and speeds, and trains of up to 3,500 tons have been hauled. The Montreal-Brockville section has been included in these trials, and has 1 in 100 gradients, 1 in 100 being the ruling grade between Montreal and Toronto. Speeds of 50 to 60 m.p.h. have been maintained with these heavy freight loads, and the tests have been completely satisfactory to date, and have proved these engines as possessing a sufficient reserve of power to handle the heaviest passenger trains at high speeds. The 6400 class will be used on the route of the International Limited and will be able to maintain continuous runs from Montreal to Sarnia, 550 miles, or over even greater distances if necessary. Normally, however, their turns will be to work either from Montreal to Toronto one day and return the next, or on fast passengers between Toronto and Sarnia, with changes of crews at intermediate divisional points.

INDIA

Inquiry into Railway Finance

The Finance Department of the Government of India and the Railway Board have been in consultation for some months past to determine the most suitable machinery for a complete examination of the railway financial position. It is reported that the recommendation of the Government on this question will shortly be forwarded to the Secretary of State and a final decision on the method of inquiry will soon be made.

In the meantime, the Information Bureau attached to the Government of India has issued a memorandum on the working of the Indian railways, in which emphasis is laid on the fact that the working expenses of the State-owned railways have been reduced by Rs. 6½ crores (£4,875,000) between the years ended March 31, 1930 and 1934. One of the methods of effecting this economy was staff reduction. The railway staff today is less by 55,000 than 15 years ago though there has been an increase of about 5,000 miles in route-mileage in the same period, and between 1929-30 and 1934-35 there was a reduction in staff of about 114,000. Everything possible is being done for the men who have had to suffer, but it has to be remembered that—as the Pope Committee pointed out in 1933—the cost of staff constitutes 73 per cent. of the total working expenses, and that every operation which is eliminated, or more economically carried out, almost invariably means that less staff is required.

Remarkably Low Operating Ratio

The memorandum points out that despite fluctuations in traffic receipts there has been a steady decline in the operating ratio which fell from 57·2 in 1930-31 to 54·7 in 1934-35. The operating ratio of the Indian railways is the best for any large railway system in the world. The ratio is affected mainly by the rates of wages paid and the charges for transportation. Indian railways may not pay such high salaries as the railways in some other countries, but on the other hand Indian rates and fares are, with one or two exceptions, the lowest in the world.

The reduction in stores balances is another method by which economy in expenditure has been achieved in recent years. The stores balance, which stood at Rs. 17·09 crores in 1924-25, has been gradually reduced year by year to Rs. 9·34 crores in 1934-35. Stores balances are carried on capital account on which interest has to be paid. The reduction effected means a substantial saving in the interest on Rs. 7·75 crores.

Rates Information Bureau Proposed

At Cawnpore on July 2, the representatives of the G.I.P., E.I.R., B.B. & C.I. and B. & N.W. Railways met the representatives of the various Chambers of Commerce in the United Provinces to discuss the question of opening a Rates Information Bureau at Cawnpore. It will be recalled that at a conference of railway, commercial and agricultural interests convened by the Government of India at Delhi in December, 1935, much importance was placed on the necessity for increased facilities for obtaining rates quotations: it was then suggested that the possibilities of establishing a Rates Information Bureau should be explored. The present meeting formulated tentative proposals for such an institution which, it was emphasised, must be in a position to quote rates to and from any station within the area which the proposed bureau might serve.

Railway Road Service

Four years of successful operation of road motor services by the Nizam's State Railway provide sufficient encouragement for the administration to contemplate further extension. At present the railway operates 118 buses over 11,000 miles in selected areas of the Nizam's Dominions. It is now proposed to add a further 139 buses to the existing fleet for operation in the seven remaining districts from October next. Private road operators are alarmed at this project and have submitted a memorial to the Railway Member of the Nizam's Government.

SPAIN

Railway Bonds

The official *Gazette* published in Madrid on July 3 contains a ministerial order, authorizing the Superior Railway Council to proceed to the liquidation referred to in Article 2 of the Law of August 1, 1935, which created the railway bonds under State guarantee. This, so far as it goes, is a satisfactory result of the appeals made by the two principal railway companies to the Minister for a settlement of the arrears of the interest guaranteed by the State under the law.

Proposed Legislation

The desire of the Government to bring forward some solution of the railway problem was again voiced by the Minister of Public Works during the meeting of the Cabinet in Madrid on July 6. The question has assumed an even more urgent form since the claims of the railwaymen's unions have taken the form of a threat of a general strike. Although no definite decision was even drafted at this meeting of the Cabinet, and although it is probable that such a complicated matter will require protracted deliberation, the Ministers agreed that the threat of a general strike cannot be disregarded, and such an eventuality might hasten a decision in favour of some form of nationalisation.

Railway Defence Committee

This body—which is formed of interests intimately connected with the railways, such as debenture holders and other creditors, coal owners, private wagon owners, and makers and suppliers of rolling stock and other materials—has submitted to the parliamentary commission a reasoned protest against the Bill of June 5, 1936, which provides for an increased measure of Government intervention in the boards of directors of the companies. The protest makes it clear that the committee is not primarily interested only in defending the interests of the railway companies, as well as being desirous of collaborating with the Government in any way conducive to a solution of the problem, but also respectfully points out that the Bill does not provide a real solution and would only tend to introduce even greater complications into this long-standing problem. The critical position of the railway companies is reflected in the fact that the national index figure of production of iron has fallen from 134 in 1929 to 84·7 in 1934, while supplies of railway material are only 30 per cent. of what they were in 1928. In the opinion of the committee, the proposed intervention will neither remedy the financial

situation of the companies nor satisfy the more or less justified claims of the personnel, and it will do nothing to facilitate the radical solution which the public interest demands for this complicated problem which so intimately affects the life of the nation.

The Ponferrada Collision

In connection with this head-on collision [described on page 102 of our issue of July 17.—ED. *R.G.*], *El Sol*, a leading Madrid daily, publishes a long article in its issue of July 14, calling attention to the antiquated system of verbal "line clear" block working still in use on single-line railways in Spain and under which the lives of passengers are dependent on the memory and accuracy of a single employee. Passengers on the majority of the Spanish railways are therefore exposed to the constant risk of collision such as that at Ponferrada. In making these criticisms in which not only the railway companies but also the State Inspection Department, are mercilessly scourged, *El Sol* intentionally or through ignorance, entirely omits to take into account the fact that on most of the outer radial lines in Spain the traffic density is extraordinarily low. Thus there may be a main line of 300 or 400 miles in length, with fifty stations, and with but one express and one slow passenger train a day, and in these circumstances the cost of a full installation of electric block working is hardly justified. On the other hand, it must be remembered that the main trunk lines, such as that from the frontier at Hendaye to Madrid, are double tracked and electrically signalled throughout.

The Palamos Railway

According to advices from Barcelona, the light railway running from Gerona to the Port of Palamos and owned by the Ferrocarriles Economicos Company has been abandoned by the owning company after working for several years at a loss. It is said that the employees will continue to work the line on a co-operative basis.

UNITED STATES

Railways Now Combating Excessive Regulation

Signs are not wanting that the complacency of the railways with regard to the extraordinary complexity of detail surrounding them in the form of legal regulation is at last giving place to open revolt. Though they failed—thanks to the obstruction of Senator Wheeler—to obtain from Congress a repeal of the fourth section of the act governing certain rates to meet competition, the railways are now up in arms, and are preaching to the traders the advantages to them of relaxation of control, and are citing with telling effect those resulting from agreed rates, such as are obtainable under British railway regulation but not in America.

The Association of American Railroads is also proceeding apace with its programme of strengthening its publicity organisation, and the industry which has long been the butt of innumerable power-hungry bureaucrats and "reformers" is preparing to mobilise its friends. There has already been a noticeable stiffening of railway morale, merely on word getting around that rearguard tactics were to be abandoned.

ITALY

Trial Run of Streamlined Electric Train

It is officially announced that the electric streamlined train built by the Società Anonima Italiana Ernesto Breda at Milan to the order of the Italian State Railways administration has undergone further trials on the Bologna-Florence-Rome-Naples line, the overall distance of 663 km. (412 miles) having been covered on one occasion in 5 hours and 35 minutes, at an average speed of 73·8 m.p.h. with a maximum of 115 m.p.h.

THE BALKANS

New Railways

The Kosovo Polje—Pec Railway, an 82-km. line which [as stated on pages 1027 and 1030 of our issue of May 29 last.—ED. *R.G.*] has been under construction in south-western Jugoslavia, has now been officially opened. For three-fifths of its length this new line passes through very difficult mountainous country involving the building of many bridges and tunnels. The work was undertaken early in 1933 by a French firm and is stated to have cost 160 million dinars (£727,250). It will be remembered that this is the first new link in the east-to-west chain intended to join Bulgarian Black Sea ports, Sofia and other cities with Cattaro on the Adriatic via Nish, Pristina, Kosovo Polje, Pec and Cetinje.

In Bulgaria a new section of line between Dolna Mahala and Hissar—a diversion of the Plovdiv (Philippopolis)-Karlovo Railway—was opened for traffic on June 21. Work has also begun upon the construction of a new line from Burgas, on the Black Sea, to Pomorié. Various municipalities and other interests have contributed 10 million leva towards the cost of this construction.

Better Czechoslovak-Soviet Communications

In Roumania and Czechoslovakia there is much talk of improving through communications between the latter country and Soviet Russia via Roumania to avoid passing through Polish territory. An entirely new line was at first discussed, but owing to the extreme difficulty of the country to be traversed, it now seems probable that existing lines will be improved instead, and short new internal connections made to link them up more directly.

For instance the narrow gauge line through Borsha may be converted to standard gauge, thus giving a through route on that gauge from Teresva in Czechoslovak territory, via Valea Visheului, Borsha Humora, and Suceva to Veresti. By the completion of the Dangeni-Lipkany link, Moghilev on the U.S.S.R. frontier could then be reached by rail more directly, though it is doubtful if this tortuous route north-east of Veresti would offer much advantage over the existing detour via Cernautzi (Czernowitz). There is a direct line from Moghilev to Moscow via Kiev. Alternatively, to shorten the route, links might be constructed between Borsha and Shipote, and as a cut-off south-west of Cernautzi.

MANCHUKUO & KOREA

Mishan Branch Opened

The new Luikow-Mishan branch in extension of the Mutangchiang—Luikow line in east Manchukuo, running parallel with the Soviet frontier, is to be opened for traffic on July 1.

Rashin Harbour Works

Construction work now in hand for the improvement of Rashin harbour is to be completed by the end of this year, when the port will be able to accommodate eight ships of 4,000 tons each and handle about 300,000 tons annually. Plans which were contemplated for further extensions of the harbour are to remain in abeyance until improved business conditions call for and justify further expenditure.

CHINA

Miscellaneous Construction Notes

The Soochow-Kashing chord line connecting the Nanking-Shanghai and Shanghai-Hangchow-Ningpo Railways, by short-circuiting Shanghai, has been completed and will be opened on July 15.

Platelaying on the Lung-Hai Railway extension westwards of Sian has now reached a point 44 miles beyond that city.

The formation of the new extension of the Taokow-Chinghua Railway from Taokow to Naihwang in north-eastern Honan, near the Hopeh border, has now been completed throughout, and platelaying is well in hand, so that the opening for traffic is expected to take place in the near future.

Work has now begun upon the construction of the Nanchang-Pinghsiang extension of the Chekiang-Kiangsi Railway, the last link remaining to complete the chain forming the through rail route from Shanghai to Canton. The section now undertaken is 263 km. in length.

THE FASTEST TRAINS IN GREAT BRITAIN

A tabulation of fast runs scheduled in the 1936 summer train services

In the accompanying Table A a list is given of all runs in Great Britain booked from start to stop at speeds of 60 m.p.h. and over. Table B shows the aggregate mileage of runs booked over each system at speeds of 58, 60, 62, 64, 66, and 70 m.p.h. respectively. In the latter the Southern Railway appears this summer for the first time, by reason of the 86-min. runs made in each direction by the first portion of the Atlantic Coast Express over the 83·8 miles between Waterloo and Salisbury, and a 37-min. run from Basingstoke to Surbiton; but as yet the Southern has no runs coming within the mile-a-minute range.

The chief additions to the 60-m.p.h. range this year have been made by the L.N.E.R. As the Silver Jubilee did not start until September last, this is the first summer in which its runs and the 180-min. runs of the Scarborough Flyer between King's Cross and York have appeared in the same table; and both directions of the Yorkshire Pullman workings between London and Doncaster now appear at or above the 60 m.p.h. line. Another new L.N.E.R. run is the 34-min. journey of the 6.20 p.m. Marylebone-Bradford express over the 34·0 miles from Woodford to Leicester, made as a result of stopping instead of slipping coaches at Woodford. The principal L.M.S.R. change is the bringing of the up Merseyside express into the table by its 10-min. acceleration of last May, whereby it now covers the 189·7 miles from Mossley Hill to Euston in 189 min.; there is also a new 82-min. run from Rugby to Euston. No addition is made to the G.W.R. mileage, but some slight rearrangements of trains have taken place. It will be noticed that during the summer the Cornish Riviera Express is booked in the working timetables to stop at Newton Abbot for pilot assistance over the grades between there and Plymouth, when the load of the train demands it, which introduces a 60 m.p.h. run between Paddington and Newton.

The L.N.E.R. (Table B) in three successive years has speeded up from 371 miles booked from start to stop at 60 m.p.h. and over in 1934 to 1,067 miles in 1935 and 1,633 miles in 1936; while at 58 m.p.h. and over 579 miles in 1934 has grown similarly to 1,461 miles in 1935 and 2,219 miles in 1936. The mileage of the L.N.E.R. at booked speeds of 62, 64, 66, and 70 m.p.h. is also greater than that of any other British railway, although it must be admitted that this is chiefly due to the 465 miles of the Silver Jubilee service so scheduled. At 60 m.p.h. and over the L.M.S.R. has a handsome lead over all competitors, but at 58 m.p.h. and over the G.W.R. is in its customary place at the head of the table, with 3,729 miles daily.

TABLE A.—BRITISH RAILWAY RUNS SCHEDULED DAILY AT 60 M.P.H. AND OVER FROM START TO STOP

SUMMER SERVICE, 1936

Railway	Section	From	To	Train	Distance	Time	Speed
					miles	min.	m.p.h.
G.W.R. ...	—	Swindon ...	Paddington ...	3.55 p.m. ...	77·3	65	71·4
L.N.E.R. ...	G.N.	King's Cross	Darlington ...	5.30 ,, ...	232·3	198	70·4
,, ...	,,	Darlington ...	King's Cross ...	10.42 a.m. ...	232·3	198	70·4
G.W.R. ...	—	Paddington ...	Bristol* ...	10.00 ,, ...	118·3	105	67·6
,, ...	—	Bristol† ...	Paddington ...	4.30 p.m. ...	117·6	105	67·2
L.M.S.R. ...	Western	Rugby ...	Watford Jc. ...	6.58 ,, ...	65·1	60	65·1
,, ...	,,	Crewe ...	Willesden Jc. ...	6.12 ,, ...	152·7	142	64·5
G.W.R. ...	—	Oxford ...	Paddington ...	10.10 a.m. 5.35 p.m.	63·5	60	63·5
,, ...	—	Chippenham	Paddington ...	8.28 a.m. ...	94·0	89	63·4
L.N.E.R. ...	G.N.	Grantham ...	King's Cross ...	9.40 ,, ...	105·5	100	63·3
G.W.R. ...	—	Paddington ...	Bath	11.15 ,, 1.15 p.m.	106·9	102	62·9
L.N.E.R. ...	G.N.	King's Cross	York	11.10 a.m. ...	188·2	180	62·7
,, ...	,,	York	King's Cross ...	11.50 ,, ...	188·2	180	62·7
L.M.S.R. ...	Western	Stafford ...	Euston	6.52 p.m. ...	133·6	128	62·6
,, ...	,,	Willesden Jc.	Birmingham ...	9.26 a.m. ...	107·5	104	62·0
G.W.R. ...	—	Kemble ...	Paddington ...	9.02 ,, ...	91·0	88	62·0
L.M.S.R. ...	Western	Blisworth ...	Euston	11.41 ,, ...	62·8	61	61·8
G.W.R. ...	—	High Wycombe	Leamington ...	9.44 ,, ‡ ...	60·8	59	61·8
L.M.S.R. ...	Western	Wilmslow ...	Euston	10.08 ,, ...	176·9	172	61·7
G.W.R. ...	—	Paddington ...	Exeter	12.00 noon ...	173·5	169	61·6
L.M.S.R. ...	Western	Crewe ...	Euston	10.16 a.m. ...	158·1	154	61·6
G.W.R. ...	—	Paddington ...	Taunton ...	1.40 ,, ...	142·7	139	61·6
L.N.E.R. ...	G.C.	Leicester ...	Arkwright St.§	4.30 ,, ...	22·6	22	61·6
,, ...	N.E.	Darlington ...	York	9.08 ,, 9.40 ,, 11.30 ,,	44·1	43	61·5
L.M.S.R. ...	Western	Euston ...	Coventry ...	2.25 p.m. 5.50 ,,	94·0	92	61·3
,, ...	,,	Crewe ...	Euston	10.35 a.m. ...	158·1	155	61·2
,, ...	,,	Coventry ...	Willesden Jc. ...	5.12 p.m. ...	88·6	87	61·1
G.W.R. ...	—	Swindon ...	Paddington ...	1.14 ,, ...	77·3	76	61·0
L.N.E.R. ...	G.N.	Huntingdon ...	King's Cross ...	9.30 a.m. ...	58·9	58	60·9
,, ...	,,	Doncaster ...	King's Cross ...	12.06 p.m. ...	156·0	154	60·8
L.M.S.R. ...	Western	Euston ...	Blisworth ...	4.35 ,, ...	62·8	62	60·8
,, ...	,,	Blisworth ...	Euston	5.58 ,, ...	62·8	62	60·8
G.W.R. ...	—	Paddington ...	Kemble	5.00 ,, ...	91·0	90	60·7
L.M.S.R. ...	Western	Coventry ...	Euston	12.07 ,, 1.22 ,, 2.57 ,,	94·0	93	60·6
G.W.R. ...	—	Reading ...	Westbury ...	11.15 a.m. ...	59·6	59	60·6
,, ...	—	Westbury ...	Reading ...	5.09 p.m. ...	59·6	59	60·6
L.N.E.R. ...	G.N.	Grantham ...	Doncaster ...	7.42 ,, ...	50·5	50	60·6
G.W.R. ...	—	Moreton-in-Marsh	Oxford	9.35 a.m. ...	28·3	28	60·6
L.M.S.R. ...	Western	Stoke-on-Trent	Euston	1.15 p.m. ...	145·9	145	60·4
G.W.R. ...	—	Paddington ...	Westbury ...	3.30 ,, ...	95·6	95	60·4
L.M.S.R. ...	Western	Rugby ...	Euston	9.31 a.m. ...	82·6	82	60·4
G.W.R. ...	—	Swindon ...	Reading ...	7.21 p.m. ...	41·3	41	60·4
L.M.S.R. ...	Midland	Luton... ...	St. Pancras ...	4 trains ...	30·2	30	60·4
,, ...	Western	Euston ...	Wilmslow ...	6.00 p.m. ...	176·9	176	60·3
L.N.E.R. ...	G.N.	Peterborough	King's Cross ...	3.04 ,, ...	76·4	76	60·3
G.W.R. ...	—	Paddington ...	Newton Abbot	10.30 a.m. ...	193·7	193	60·2
L.M.S.R. ...	Western	Mossley Hill ...	Euston	10.21 ,, ...	189·7	189	60·2
G.W.R. ...	—	Swindon ...	Paddington ...	4.18 p.m. ...	77·3	77	60·2
L.M.S.R. ...	Midland	Cheltenham ...	Bromsgrove‖ ...	4 trains ...	31·1	31	60·2
L.N.E.R. ...	N.E.	Darlington ...	York	8.49 p.m. ...	44·1	44	60·1
,, ...	G.N.	King's Cross	Doncaster ...	4.45 ,, ...	156·0	156	60·0
,, ...	G.C.	Woodford ...	Leicester ...	7.45 ,, ...	34·0	34	60·0

* Via Bath. † Via Badminton. ‡ Slip carriage. § Nottingham. ‖ Service stop to attach bank engine.

TABLE B.—AGGREGATE MILEAGE OF BRITISH RAILWAY RUNS BOOKED AT 58 M.P.H. AND OVER FROM START TO STOP

SUMMER SERVICE, 1936

Railway	70 m.p.h. and over	66 m.p.h. and over	64 m.p.h. and over	62 m.p.h. and over	60 m.p.h. and over	58 m.p.h. and over
	miles	miles	miles	miles	miles	miles
G.W.R. ...	77 (1)	313 (3)	313 (3)	839 (9)	1,940 (21)	3,729 (40)
L.M.S.R. ...	—	—	218 (2)	459 (4)	2,633 (29)	2,964 (37)
L.N.E.R. ...	465 (2)	465 (2)	465 (2)	947 (5)	1,633 (15)	2,219 (25)
S.R. ...	—	—	—	—	—	204 (3)
Totals	542 (3)	778 (5)	996 (7)	2,245 (18)	6,206 (65)	9,116 (105)

NOTE.—The figures in brackets indicate the number of individual runs making up each total mileage.

BRITISH RAILWAY STATISTICS

"The Railway Gazette" monthly table for April, 1936, as compared with April, 1935, compiled from the Ministry of Transport Statement No. 197

Description	Great Britain*	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.
PASSENGER TRAIN TRAFFIC—					
Number of pass. journeys (ex. season ticket holders)	102,378,558	7,248,802	14,514,759	24,276,845	17,690,123
Increase (+) or decrease (−)	+ 1,985,374	− 112,981	+ 151,193	+ 5,948	+ 65,723
Passenger receipts (excluding season ticket holders)	£4,401,477	£588,086	£884,648	£1,411,286	£936,633
Increase (+) or decrease (−)	+ £116,017	+ £1,507	+ £37,828	+ £51,117	− £2,586
Season ticket receipts	£855,478	£54,248	£151,414	£219,055	£286,962
Increase (+) or decrease (−)	+ £52	+ £179	+ £510	− £9,643	+ £7,004
Parcels and misc. traffic receipts (excluding parcels post)	£1,075,188	£195,679	£334,141	£403,879	£121,642
Increase (+) or decrease (−)	− £33,751	− £9,910	+ £4,217	− £20,385	− £6,025
FREIGHT TRAIN TRAFFIC—					
Freight traffic (tons) (excluding free-hauled)	20,481,745	4,753,561	9,389,878	9,668,629	1,233,831
Increase (+) or decrease (−)	− 149,849	− 194,805	+ 305,116	− 78,810	− 30,052
Net ton-miles (excluding free-hauled)	1,163,750,054	208,062,479	390,851,640	483,812,610	49,081,958
Increase (+) or decrease (−)	+ 7,743,391	− 5,707,961	+ 6,860,848	+ 10,499,785	− 3,033,038
Average length of haul (miles) (excluding free-hauled)	56·82	43·77	41·62	50·04	39·78
Increase (+) or decrease (−)	+ 0·79	+ 0·57	− 0·65	+ 1·48	− 1·45
Freight traffic receipts	£6,586,436	£1,086,000	£2,187,000	£2,746,000	£355,180
Increase (+) or decrease (−)	+ £16,307	− £46,000	+ £116,300	− £47,000	− £9,995
Receipts per ton-mile	1·358d.	1·25d.	1·34d.	1·36d.	1·74d.
Increase (+) or decrease (−)	− 0·006d.	− 0·02d.	+ 0·05d.	− 0·05d.	+ 0·06d.
Freight train-loads: Average train-load (tons)	126·82	128·95	132·33	126·11	103·38
Increase (+) or decrease (−)	+ 1·57	− 1·79	+ 2·24	+ 3·01	− 1·20
Net ton-miles—					
Per train engine-hour	997·07	1,036·21	1,049·09	966·85	852·24
Increase (+) or decrease (−)	− 25·56	− 51·63	− 12·90	− 31·07	+ 15·81
Per shunting-hour	868·02	782·53	953·03	906·22	553·40
Per total engine-hour	464·04	445·84	499·38	467·78	335·53
Net ton-miles per route-mile per working day	2,670	2,553	2,840	3,198	1,119
Increase (+) or decrease (−)	+ 16	− 73	+ 42	+ 60	− 48
Wagon-miles. Total	341,619,504	61,563,163	117,620,091	143,713,474	16,869,434
Increase (+) or decrease (−)	+ 972,895	− 621,441	+ 985,465	+ 998,915	− 238,958
Percentage of loaded to total	66·49	67·40	63·97	68·31	65·69
Wagons per train. Total	35·02	35·29	35·52	34·94	32·76
Increase (+) or decrease (−)	+ 0·40	+ 0·16	+ 0·40	+ 0·46	+ 0·75
Loaded	23·28	23·79	22·72	23·87	21·52
Empty	11·74	11·50	12·80	11·07	11·24
Train-miles. Coaching—Per train-hour	15·13	14·21	14·35	14·46	17·45
Per engine-hour	12·05	11·23	11·07	10·98	14·40
Train-miles. Freight—Per train-hour	9·28	9·80	9·34	8·95	10·36
Per engine-hour	3·66	3·48	3·81	3·71	3·20
Engine-miles. Total	44,764,948	7,056,412	12,283,204	16,629,034	5,981,181
Increase (+) or decrease (−)	+ 872,147	+ 130,264	+ 247,789	+ 378,432	+ 147,078
Mileage run by engines. Total train-miles—					
Coaching	22,679,474	3,126,118	5,185,710	7,342,625	4,420,361
Freight	9,755,101	1,744,321	3,311,809	4,113,526	514,920
Engine-hours in traffic. Total	4,744,712	803,492	1,406,580	1,857,934	486,454
Increase (+) or decrease (−)	+ 107,955	+ 9,651	+ 29,080	+ 63,527	+ 8,172
Shunting miles per 100 train-miles—					
Coaching	7·48	7·01	6·59	8·07	8·41
Freight	72·88	82·15	68·31	68·67	98·30

Passenger Traffic Statistics: Number of journeys, receipts, and receipts per journey (excluding season ticket holders)—April, 1936

Subject	Great Britain	G.W.R.	L.N.E.R.	L.M.S.R.	S.R.	Cheshire Lines	Liverpool Overhead	L.P.T.B.†	Mersey
Full fares—									
Pass. journeys	32,693,957	719,317	1,144,844	1,591,247	2,782,359	16,296	151,326	25,396,478	77,564
Gross receipts	£909,053	£83,891	£130,291	£134,027	£187,959	£2,723	£1,531	£351,540	£1,389
Receipts per pass.	6·67d.	27·99d.	27·31d.	20·21d.	16·21d.	40·10d.	2·43d.	3·32d.	4·30d.
Reduced fares—									
Excursion and week-end—									
Pass. journeys	41,102,409	4,435,243	9,158,410	15,053,766	8,791,206	429,302	91,624	1,416,781	618,641
Gross receipts	£2,772,044	£423,463	£621,398	£1,050,558	£570,704	£26,736	£914	£31,224	£9,531
Receipts per pass. journey	16·19d.	22·91d.	16·28d.	16·75d.	15·58d.	14·95d.	2·39d.	5·29d.	3·70d.
Workmen—									
Pass. journeys	24,710,385	1,638,160	3,270,378	6,504,996	5,332,264	224,190	189,648	6,525,200	181,560
Gross receipts	£361,313	£24,654	£53,330	£104,869	£88,442	£3,859	£1,534	£72,773	£1,669
Receipts per pass. journey	3·51d.	3·61d.	3·91d.	3·87d.	3·98d.	4·13d.	1·94d.	2·68d.	2·21d.
Other—									
Pass journeys	3,863,012	454,228	939,378	1,122,852	783,174	67,246	42,149	369,606	11,020
Gross receipts	£348,171	£53,916	£77,283	£116,669	£88,393	£3,977	£277	£3,348	£190
Receipts per pass. journey	21·63d.	28·49d.	19·74d.	24·94d.	27·09d.	14·19d.	1·58d.	2·17d.	4·14d.
Total—									
Pass. journeys	102,378,558	7,248,802	14,514,759	24,276,845	17,690,123	737,098	474,747	33,708,065	888,785
Gross receipts	£4,401,477	£588,086	£884,648	£1,411,286	£936,633	£37,359	£4,256	£458,885	£12,779
Receipts per pass.	10·32d.	19·47d.	14·63d.	13·95d.	12·71d.	12·16d.	2·15d.	3·27d.	3·45d.

* All standard gauge railways † Includes passengers originating on the railway undertakings, and on the Whitechapel and Bow Joint Railway

KEY CONTROL FOR POINTS ON LIGHT RAILWAYS

The Angermann apparatus used on the German State Railway

THE use of keys to control points and signals is, of course, no novelty in railway working. Annett's key dates from 1875, and, both here and abroad, many signalling arrangements have been invented and used in which keys play an essential part. Where traffic is light and speed of operation unimportant, key interlocking offers a relatively simple and cheap method of controlling the working of stations from a central point. It has in consequence been often used in the Colonies, sometimes with electric apparatus added to it, such as Hepper's, to eliminate as far as possible the time wasted in carrying keys to and fro. Several systems of key locking have appeared on the Continent, that of Bouré, in France, being probably the best known, though in principle there is little real difference between them.

In Germany considerable use has been made of key locking for small stations on light railways. Sometimes this is in a complete form, comprising a central key apparatus, with some locks to receive the various keys brought from the point locks on the ground, and others to be freed in turn in order to release keys controlling signal levers when everything is right for the intended movement. A simpler form is known as the " keyboard apparatus " or *schlüsselbrett*. This affords what may be regarded as only a sort of moral interlocking, as it depends on the operator—generally the sole official on duty at the smaller stations—observing the board and making sure that the keys concerning a particular train movement are in place on it, so as to be satisfied that the points are correctly set before he authorises such movement to be made.

This keyboard consists of a plan of the lines, and below or alongside it are places on which the various keys may be hung, wards, in the shape of pegs variously disposed, ensuring that the keys cannot be hung in the wrong places, A manipulation table indicates to the operator what keys he must have in place before he allows a given movement to occur.

In recent years a simple improvement has been introduced by an officer of the German State Railway named Angermann, and used originally at a number of stations in the Dresden division. It was described by its inventor at a meeting of signal engineers and inspectors in that city on May 6 and 7, 1932, and authority to use it generally on the Reichsbahn, with the object of testing its efficiency, was granted on March 22, 1934.

The accompanying illustrations will enable the working to be understood. The object of the Angermann keyboard is to give a visual indication to the station official that the keys applying to a given movement are in position, the absence of a single one being shown automatically. Fig. 1 illustrates the apparatus as applied to Kleinwelka station, on a light railway running from Bautzen in Saxony to Hoyerswerda in Silesia. As the track diagram above the keyboard shows, the layout consists of a plain running loop line and a short loop siding. Key locks, H, are applied to all six pairs of points. These marked HH have what are called succession locks, that is to say that before the key can be withdrawn from, say, points 5, to be taken to the station keyboard, that for points 4 must be secured in the lock alongside points 5.

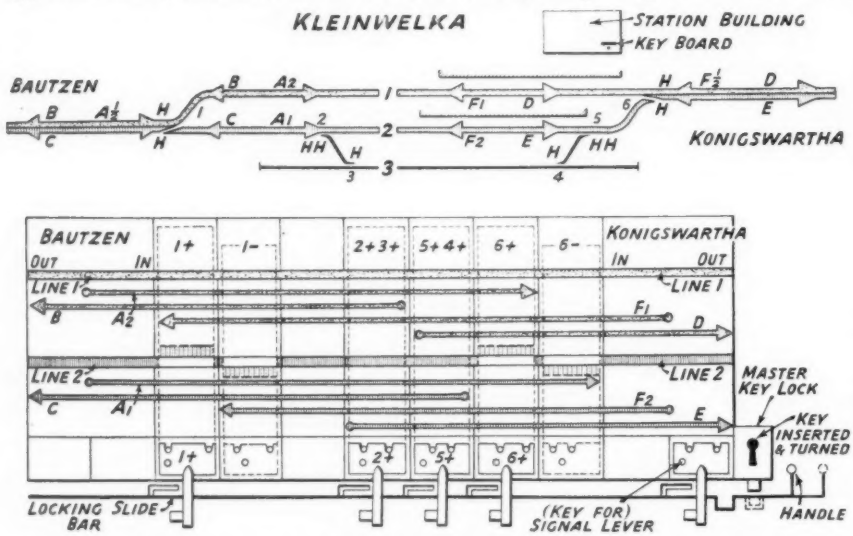


Fig. 1—General view of Angermann keyboard with diagram of lines

The keyboard itself is not a plain one, as in the older arrangement, but is fitted with vertical metal slides, as shown in Fig. 2, over each key, so that when the key is in place the slide is held raised, but will fall down if the key is missing. On the face of the board broad coloured bands are painted corresponding to the main tracks on the diagram above, and slots are cut in the board opposite the slides so as to form a gap in these bands. The slides have similarly coloured marks painted on them so that when one is raised by the appropriate key the band on the board is completed at that point, but if the key is missing a blank is seen. By means of selecting pegs variously disposed, and notches cut in the keys to match them, it is made impossible to hang any but the correct key under any one slide.

When a train movement has to take place and the keys from the points are brought and hung on the board, the station official has only to verify that the coloured band representing the route is complete. If it is, all the keys must be in place. In Fig. 2 the key for points 1 normal is in position 1 (the sign + means " normal," and − means " reversed "). The yellow band is complete, representing the route in or out of the station on line No. 1 at the Bautzen end: points No. 1 lie normally for that line. For a movement in or out of line No. 2 these points must be reversed, with key No. 1+ locked in alongside them. With no key in place in Fig. 2, neither the yellow nor the red band will be complete, but when key No. 1− is brought in and put in position the latter band will appear as a continuous bar. In addition to the broad bands

indicating the route, thin lines are also painted on the board showing each movement and the extent of the control involved.

The train movements are designated by letters, the incoming by A½, F½, the departure by B, C, D, E. In the former the figure 1 refers to the straight, 2 to the diverging route at the facing points. This conforms to the standard German home signal, showing one or two arms when cleared. No home signals are shown in this case, but they might be worked on the ground, with a simple mechanical detection rod proving the points, the handle, or lever, being key locked and controlled by the key seen on the extreme right in Fig. 1: the official would then issue this key only when he has verified the complete route on the board. The purpose of the thin coloured lines is easily understood. The one marked E, for instance, relates to a departure from line No. 2, and begins at key No. 2+ (including points No. 3+, as explained) and passes to the extreme right. It does not therefore include points No. 1.

As the keys are merely hung on the board it would be possible for some unauthorised person to remove one in the absence of the official, who must often have to leave his office to attend to the arrival and departure of the trains. Below the board, therefore, a locking slide-bar is provided which when pulled by the handle on the right bolts all the keys securely in position. The official can then lock the slide bar in the pulled position by turning and removing the key from the master key lock and so prevent any interference with the board while he is absent.

The Angermann keyboard, though not providing a complete interlocking arrangement, at least insures, by simple and ingenious means, a satisfactory degree of protection for stations on light railways, and enables the official in charge to verify the position of the points at a glance.

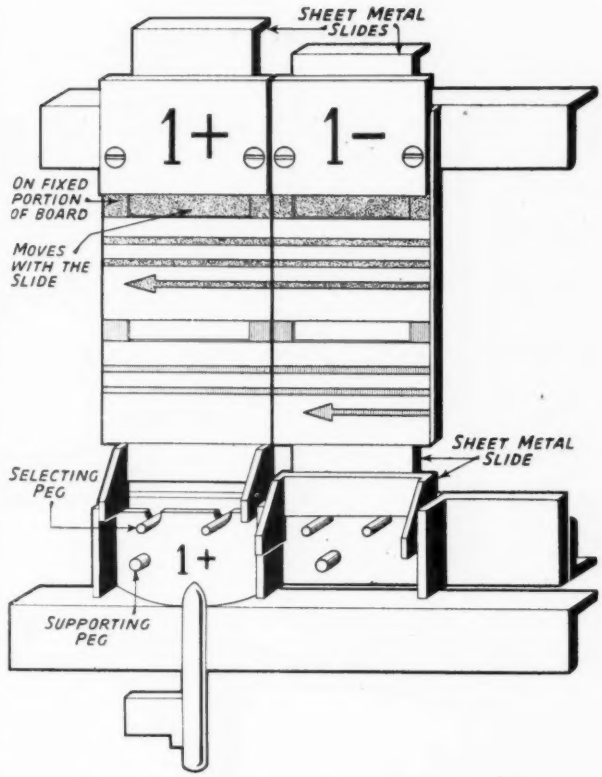


Fig 2—Enlarged view of parts of Angermann keyboard

Where Publicity Must be Pictorial or Oral

IN our own and other literate countries railway publicity has been reduced to such a fine art that one is inclined to overlook the difficulties it entails in many overseas lands where only a small percentage of the population can read. In India, for example—with the notable exception of Burma, where every boy and girl is taught both to read and write—there are some 320 millions, or 95 per cent. of the people, who are illiterate. Yet the menace of road competition is acute there also, and has to be met by propaganda widespread and intelligent to all. The road, as represented by thousands of bus and lorry drivers, carries on its own publicity by word of mouth in every village and township within miles of a main road, and to counter this propaganda the railways are now extremely active; the following are one or two experiments being tried to meet the situation:—

(1) A cinema car is sent out on extensive tours covering the whole railway system, and is provided not only with a complete outfit to give an entertainment at any road-side station, but also with fully-equipped loud-speaker apparatus to enable the inspector in charge of the car to broadcast propaganda to the crowds that come to see the performance. Audiences of from 500 to 5,000 collect wherever such a car gives a show.

(2) The village uplift movement instituted by the Government of India has provided a number of wireless receiving sets in the homes of village head-men. A central broadcasting station, in, say, Lahore, puts out regular programmes of general uplift, health and other propaganda daily, so that the whole village, by sitting outside the head-man's house, can hear the news. A part of this broadcast is provided by the railway—the North Western in this instance—and has its own speakers to broadcast in the vernacular to the villagers and tell them what it is doing.

(3) Pictorially, too, much is being done with posters specially designed to tell the whole story of particular facilities or other propaganda without words. For instance, the recent solar eclipse fair at Kurukshetra, which attracted some 200,000 people, was widely advertised beforehand with posters of the sacred bathing tanks (or pools), the great temple, the eclipse and of a train disembarking pilgrims at the bathing tanks. In such a case each subject has to be quite clear and must definitely advocate the use of the railway—as opposed to the road—as a means of reaching the mela (fair).

Different methods are employed on different railways to suit local conditions, but those just mentioned give a fair general idea of the form taken by publicity in illiterate countries in the East.

100,000-TH PATENT ISSUED TO PULLMAN-STANDARD.—The issue on June 16 of this year of Design Patent No. 100,000 to the Pullman-Standard Car Manufacturing Company, for the design and appearance of the first streamlined train to go into actual service on an American railroad, is described by our American contemporary the *Railway Age* as a milestone in the history of both the U.S.A. Patent Office and the American railroads. The design covered by this patent was first embodied in the streamliner M-10,000, built for the Union Pacific and placed in service on February 14, 1934. Essentials of this design have been incorporated in later Pullman-built trains, such as the Union Pacific streamliners City of Portland, the City of Los Angeles, the City of San Francisco, the City of Denver (two trains), and the Green Diamond of the Illinois Central.

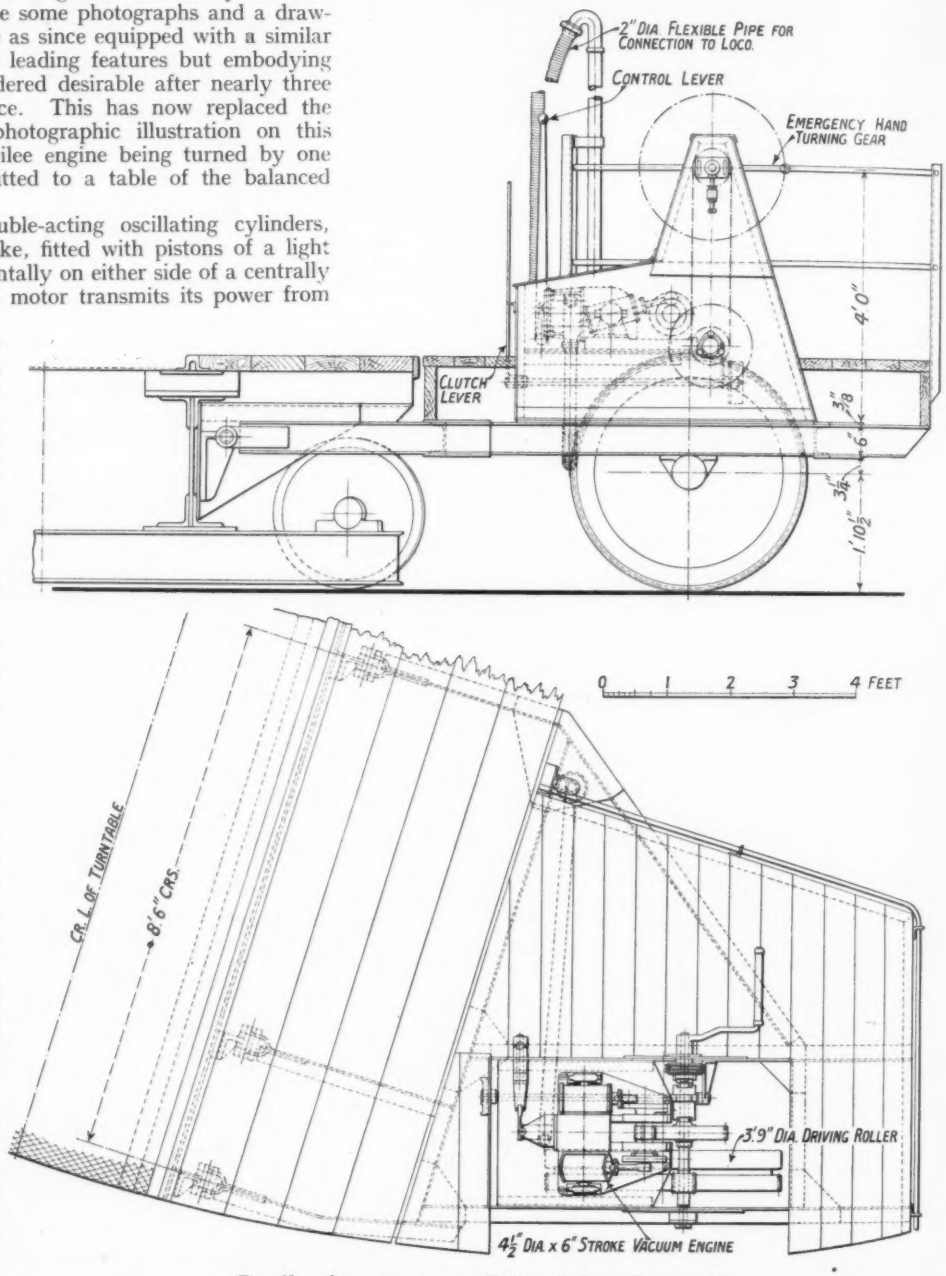
TURNING LOCOMOTIVES BY POWER FROM BRAKE APPARATUS ON THE L.N.E.R.

Detailed improvements in the arrangement of the tractor which is a product of Cowans, Sheldon & Co. Ltd. of Carlisle

ON pages 239-241 of our issue dated February 8, 1935, we published an illustrated description of mechanism designed for turning locomotives by power from the brake apparatus which had then recently been applied to a 70-ft. turntable at the King's Cross locomotive depot of the L.N.E.R. By the courtesy of Sir Nigel Gresley, C.B.E., Chief Mechanical Engineer of that system, we are now able to reproduce some photographs and a drawing showing the turntable as since equipped with a similar tractor, unchanged in its leading features but embodying certain refinements considered desirable after nearly three years of successful service. This has now replaced the earlier model and the photographic illustration on this page shows a Silver Jubilee engine being turned by one of these latest tractors fitted to a table of the balanced type.

Consisting of two double-acting oscillating cylinders, 4½ in. bore by 6 in. stroke, fitted with pistons of a light alloy and mounted horizontally on either side of a centrally disposed valve chest, the motor transmits its power from each cylinder to a common crankshaft directly through the piston rods coupled to it, and no crossheads are necessary. The engine is controlled and reversed by a lever operating four valves of the poppet type, which enables the top and bottom chambers of the centre casting, against which the cylinders work, to be open alternatively to air at atmospheric pressure and vacuum, or air, pressure, as the case may be. With this system no brake is necessary.

The power is transmitted from the crankshaft to the race wheel through two reductions of spur gearing, all of which have machine cut teeth; this is illustrated in the arrangement drawing. The intermediate shaft is carried in ball bearings attached to the steel frame of the tractor which, in the case of the balanced type of turntable, is connected to one of the beams by a hinged connection. The latter permits the table to move freely and at the same time enables the race wheel to receive the correct adhesion required to drive the table. The tractor is started, stopped, and operated in either direction by the movement of a single lever, thus reducing the operation to one of marked simplicity, involving no risk either to the operator or the machine. One of the accompanying illustrations shows the control lever and housing of the tractor.



Details of tractor as applied to balanced turntable

Engine of the "Silver Jubilee" class being turned on power-operated balanced turntable

In order to enable the table to be turned by power when dealing with cold engines or when it is necessary to adjust the empty table to suit the angle of the roads, as is the case at King's Cross, vacuum accumulators are provided of sufficient capacity to suit the circumstances. In addition to the above, means are provided for operating by hand power under emergency conditions, the change from power to hand motion being effected by the movement of the clutch lever shown in the concluding illustration. The advantage of turning in this way is shown by the following times:—

Hand turning	2½ mins.
Power turning	1 min.
Reduction in time	1½ min.

It will be appreciated that in cases where it is essential to reduce the time taken to a minimum, the motor could be connected to the train pipe on the engine near the cab, and the vacuum or air pressure could also be used to withdraw the locking bolts, thereby saving further time by making it unnecessary for the engineman to go to the end of the table. This, however, involves a certain complication, and in the table in question it was considered that connecting up to the train pipe at the end of the engine or tender formed a convenient and simple method of providing the power required.

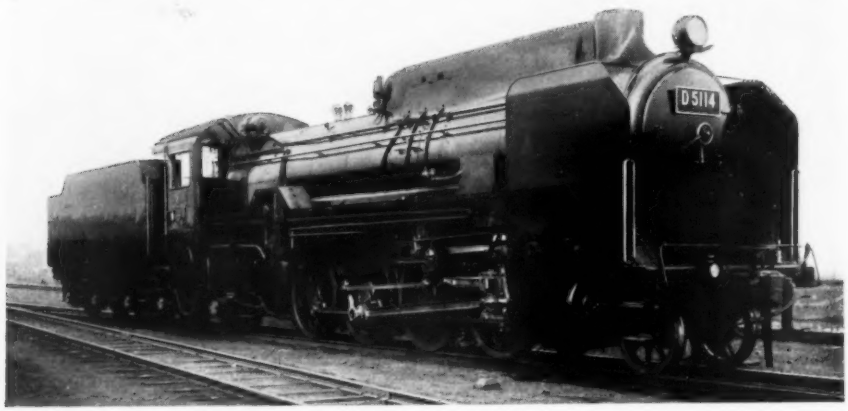
This entirely original drive was patented in 1934 by Cowans, Sheldon & Co. Ltd. of Carlisle by whom it is manufactured and supplied. Similar apparatus is used at the Camden locomotive depot of the L.M.S.R. and elsewhere.

Housing of tractor and control lever of vacuum turning gear constructed by Cowans, Sheldon & Co. Ltd., of Carlisle, and fitted to a large L.N.E.R. turntable

LONG LOCOMOTIVE RUN.—One of the standard 0-10-0 locomotives of the U.S.S.R. Railways recently hauled a goods train from Skorovoidno, on the Amur, over the Trans-Siberian Railway to Moscow. The distance of 4,700 miles was covered in 14 days, and the trailing load, made up deliberately of through cars, weighed about 1,000 tons.

NEW STANDARD 2-8-2 TYPE LOCOMOTIVE IN JAPAN

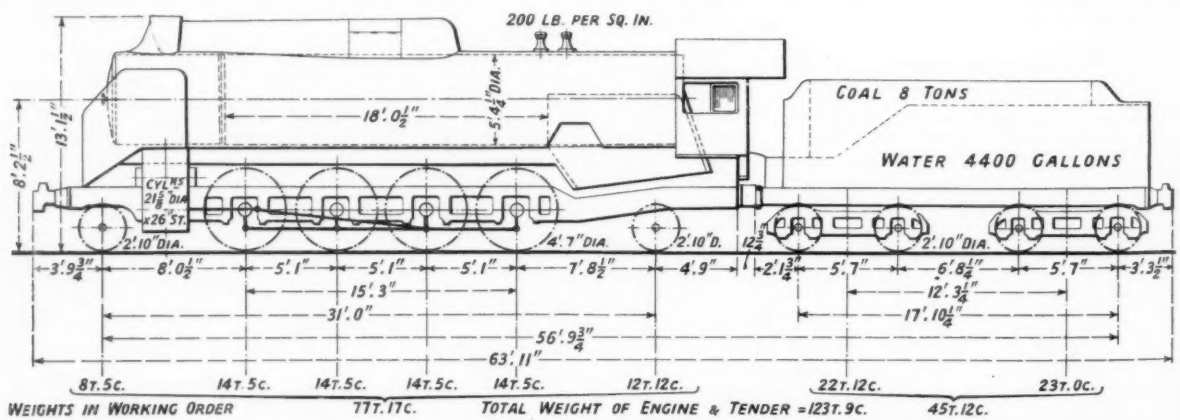
The Imperial Japanese Government Railways have now designed and built an improved Mikado type goods engine known as class "D 51"



SIMULTANEOUSLY with the introduction of streamlined passenger express locomotives described and illustrated in our issue of July 17, the Japanese Government Railways have designed a modernised 2-8-2 two-cylinder goods engine which will be the standard type for use on the main lines. The new type will be known as class D51, and in comparison with the existing 2-8-2 class D50, has an increased grate area, higher boiler pressure, and smaller diameter cylinders; the tender carries more water (4,400 galls. against 3,740 galls.) but less coal (7 tons 17½ cwt. against 11 tons 16 cwt.). Special features of the new engine are a boiler, firebox and smokebox of similar design to the new C55 class, a one-piece smokebox front, and an increased number of staybolts between inner and outer fireboxes—leakages at this point having in the past been a frequent source of trouble—improved cylinder heads of cast steel, covered-in dome and sandbox, and new style chimney. The accompanying outline drawing and photograph show the engine, and the principal dimensions are given in the table opposite.

This is a useful type of engine having well balanced proportions, as is shown by the table of particulars.

Cylinders, dia. and stroke	..	550 by 660 mm. (21⅝ in. by 26 in.).
Boiler pressure	.. .. ..	14 kg. per sq. cm. (200 lb. per sq. in.).
Flues and tubes, dia. and number		140 mm., 28 (5½ in., 28); 57 mm., 90 (2¼ in., 90).
Heating surface :—		
Firebox	.. .. ..	12·7 sq. m. (137 sq. ft.).
Arch tubes	.. .. ..	1·7 ,, (18 ,,).
Flues and tubes	.. ..	142·7 ,, (1,536 ,,).
Superheater	.. .. ..	64·4 ,, (693 ,,).
Total	.. ..	221·5 ,, (2,384 ,,).
Grate area	.. .. ..	3·30 ,, (35½ ,,).
Wheels, coupled, dia.	..	.. 1,400 mm. (4 ft. 7 in.).
,, leading and trailing, engine, and tender, dia.	..	860 mm. (2 ft. 10 in.).
Weight in working order :—		
On leading wheels	.. ..	8,400 kg. (8 tons 5 cwt.).
On coupled wheels	.. ..	58,000 ,, (57 ,, 0 ,,).
On trailing wheels	.. ..	12,800 ,, (12 ,, 12 ,,).
Total, engine	.. .. ..	79,200 ,, (77 ,, 17 ,,).
On leading tender bogie	..	23,000 ,, (22 ,, 12 ,,).
On trailing tender bogie	..	23,400 ,, (23 ,, 0 ,,).
Total, tender	.. .. ..	46,400 ,, (45 ,, 12 ,,).
Total, engine and tender	..	125,600 ,, (123 ,, 9 ,,).
Weight empty, Engine	..	70,900 ,, (69 tons 15 cwt.).
,, ,, Tender	..	18,400 ,, (18 ,, 2 ,,).
Water capacity	.. .. ..	20,000 ,, (4,400 gallons).
Fuel capacity	.. .. ..	8,000 ,, (7 tons 17½ cwt.).



Outline dimensioned diagram of new standard 2-8-2 type class "D 51" goods locomotive, Imperial Japanese Government Railways

RAILWAYS AND ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

London Bus Fleet Standardisation

IN its efforts to co-ordinate and standardise transport in the Metropolis, the London Passenger Transport Board was faced with a complicated task, so far as its bus fleet was concerned, by reason of the large number of small undertakings which had to be absorbed. As was natural, these businesses employed many different makes of vehicles, some of which admirably met the requirements of their owners but were unsuited to the needs of a large operator. In other cases there was no inherent objection to the type of vehicle, but it so happened that the board did not acquire sufficiently numerous specimens of the make to justify maintenance and provision of spares. Now that the board has completed three years of working life, and has finished its process of absorption, the time seems opportune to tabulate the details of the merged fleet. Buses and coaches totalling approximately 6,700 were taken over from some 140 proprietors, and, although the A.E.C. types predominated, there were examples of 34 other makes (apart from type variations) ranging from 295 Leylands and 222 Dennis's to solitary Brockways and Overlands.

Most of the odd types have been withdrawn from service, and, at June 30 last, the working fleet of 6,202 licensed buses had been classified as shown in the accompanying table. An examination of this reveals that 5,013 are double-deck buses and 1,189 single-deck buses or coaches; incidentally, the whole fleet is run on pneumatic tyres, with the exception of 38 NS vehicles in the Central Area which retain their solid tyres, mainly, we believe, for working through Thames tunnels.

Another interesting feature of the fleet is the proportion of diesel to petrol engines. In total it will be seen that 4,664 run on petrol and 1,538 on heavy oil. Of the double-deckers, 3,737 are petrol and 1,276 diesel; while, of the single-deckers, 927 are petrol and 262 diesel. The gradual conversion of virtually the whole fleet to diesel engines will necessarily prove a slow process. It has been found expedient to segregate the two types of fuel into separate garages, and a curious result of this policy has been the conversion *from* diesel *to* petrol of the three Leyland Titanic (six-wheeled) double-deck buses taken over from the City Motor Omnibus Co. Ltd. They were first allocated to the Hanwell (diesel) garage, but subsequently the engines were changed and the buses (as type TC) transferred to Upton Park garage, where is the bulk of the other double-deck Leyland vehicles.

The fleet of double-deck diesel-engined Leylands is now being increased by 100, for, as recorded in our Contracts and Tenders page, an order for this number of Leyland Titans has just been placed by London Transport. This is the first occasion on which the board has entrusted the building of both chassis and bodywork of motorbuses to one manufacturer.

Although the Central fleet comprises 5,108 licensed buses, the ordinary schedules require considerably fewer, and 4,599 (4,292 double-deck and 307 single-deck) meet the maximum ordinary needs of the Monday to Friday schedule. Saturday requires 4,529 and Sunday but 3,534. An interesting point is that, although the Saturday schedule calls for a smaller total, it actually requires the maximum (339) of single-deckers.

The remaining road passenger fleets of the board, details of which are not shown in our table, are trams and trolleybuses. In view of tramway conversion to trolleybus working, these are necessarily in a state of flux, but at June 30 there were 2,325 trams (not all licensed), and 300 trolleybuses.

Type Letters	Type of Engine and Chassis		Type of Body (Double-deck or Single-deck) and Approximate Seating		Central Buses	Country Buses	Coaches
NS	A.E.C.	(Petrol)	D.D.	50/52	1,032	—	—
LS	A.E.C. 6-wheel	(Petrol)	D.D.	56	11	—	—
ST	A.E.C. Regent	(Petrol)	D.D.	48/52	1,009	128	—
LT	A.E.C. Renown	(Petrol)	D.D.	56/60	781	1	—
LT	A.E.C. Renown	(Diesel)	D.D.	56/60	445	—	—
LT	A.E.C. Renown	(Petrol)	S.D.	32/35	199	2	1
T	A.E.C. Regal	(Petrol)	S.D.	26/32	60	27	293
T	A.E.C. Regal	(Diesel)	S.D.	30	—	—	12
STL	A.E.C. Regent	(Petrol)	D.D.	56/60	571	—	—
STL	A.E.C. Regent	(Diesel)	D.D.	48/60	720	101	—
STF	A.E.C. Regent	(Diesel)	D.D.	56	1	—	—
Q	A.E.C.	(Petrol)	D.D.	55	2	2	—
Q	A.E.C.	(Petrol)	S.D.	35	—	1	—
Q	A.E.C.	(Diesel)	S.D.	37/8	53	100	—
R	A.E.C. Reliance	(Petrol)	S.D.	26/32	—	39	6
BD	Bedford	(Petrol)	S.D.	20	—	19	—
C	Leyland Cub	(Diesel)	S.D.	20	23	74	—
DA	Dennis Dart	(Petrol)	S.D.	17/18	44	—	—
DC	Dennis Mace	(Petrol)	S.D.	25	—	1	—
DL	Dennis Lance	(Petrol)	D.D.	47/53	33	—	—
DT	Dennis Lancet	(Petrol)	S.D.	31/32	—	4	5
GF	Gilford	(Petrol)	S.D.	23/32	—	53	87
MS	Morris Viceroy	(Petrol)	S.D.	20	—	8	2
TC	Leyland Titanic	(Petrol)	D.D.	62	3	—	—
TD	Leyland Titan	(Petrol)	D.D.	48/56	112	52	—
TD	Leyland Titan	(Diesel)	D.D.	50/56	9	—	—
TD	Leyland Titan	(Petrol)	S.D.	25/30	—	2	19
TR	Leyland Tiger	(Petrol)	S.D.	26/32	—	3	37
	Miscellaneous Types	(Petrol)	S.D.	20/32	—	9	6
	TOTALS		.. .. ..		5,108	626	468

The composition of the fleet of licensed motorbuses of the London Passenger Transport Board at June 30, 1936

A Combination Passenger Vehicle

A new type of vehicle designed to operate as a trolleybus where overhead equipment is available and to work on the petrol-electric system elsewhere

IN view of the increased use of trolleybuses in places where the conditions are specially suitable, and the revival of interest in the petrol-electric system, it is interesting to note that a vehicle combining both systems has been evolved in the United States. It is known as the "all-service" vehicle and after putting 62 of them into service during the past year, the Public Service Co-ordinated Transport, of the Newark, N.J., has ordered a further 25. They are being built by General Motors Truck Corporation with electrical equipment by the General Electric Company. We do not think the arrangement is likely to find wide application in view of weight and other considerations, but only in special cases where through running without change of vehicle is demanded.

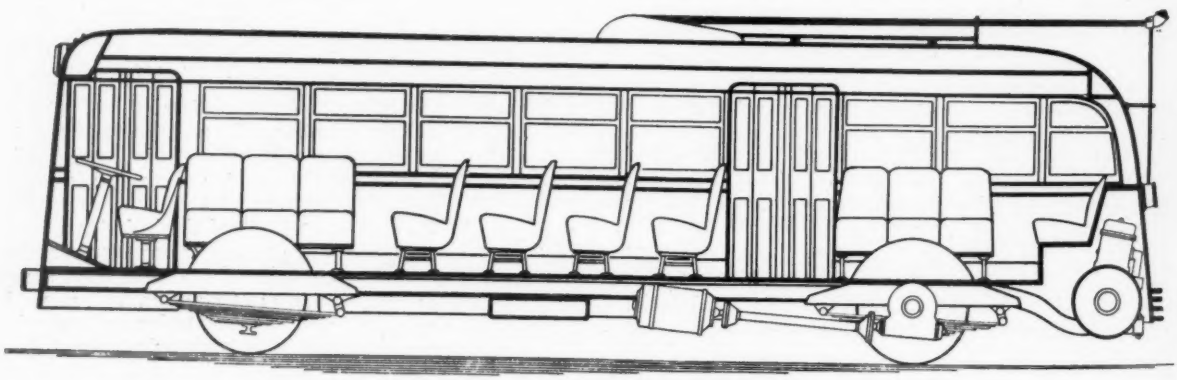
The general arrangement of the vehicle can be seen in the drawing below. The petrol engine, of 125 h.p., is placed transversely at the rear driving a 100 h.p. generator, which in turn feeds through the selector switch located alongside the driver, into two 50 h.p. motors driving the rear wheels. When working as a trolleybus the current is supplied to the same selector switch and thence through a foot controller to the motors. When it is desired to change from trolleybus to petrol-electric working, the driver without reducing the speed of the vehicle or leaving his seat, by pressing a button, can cause the trolley poles to be pulled down to the roof into automatic locks by means of electrically-operated retrievers, in three seconds. The petrol engine is fitted with a supercharger by means of which the output can be increased to 160 h.p. As a petrol-electric bus the speed is controlled by an accelerator pedal.

The vehicles are fitted with streamlined, light-weight, metal bodies, providing accommodation for 36 passengers; cross seats are used in the centre, with longitudinal seats over the wheels. The doors are operated pneumatically. Heating is carried out on a combination scheme; hot water from the cooling system of the engine is used when the vehicle is running as a motorbus, and an electric resistance at other times. Incidentally, at such times as the engine is not working, a small pump circulates warm water through the cylinder jackets to facilitate starting-up. The air is distributed by an electrically-driven blower and a thermostatic control ensures a standard temperature being maintained in the saloon.

A general view of the motor coach which can be used as a trolleybus or as a petrol-electric vehicle

On the all-service buses there are three independent braking systems that may be used at any time. The first is the air brakes on all four wheels; the second the manually-operated brakes on the shafts of the two propulsion motors; and the third a dynamic brake operated through the windings of the motors.

Two examples of the working of the vehicles may be given. One route is between Camden and Clementon, for four miles of which the trolleybus scheme is utilised while for the other nine the bus is driven by the petrol-electric system. The road formerly had a tramway along it and is now being reconstructed as a state highway; when the work is completed, trolleybus operation will be used over the greater part. Between Bound Brook and Newark is a run of 29 miles, 20 of which is worked as a trolleybus.



General arrangement of the engine, generator, and motors on the "all-service" bus in operation at Newark, N.J.

A Well-Tested Vehicle

Details of a type of goods vehicle that has proved remarkably successful in the service of railway and railway-associated companies as well as other operators

WHEN it is announced that one British railway company has placed its 53rd repeat order for a certain type of vehicle and that other companies are continuing to order it in considerable numbers, it must be agreed that the type has proved its merits for that class of work. That is the case with the Thornycroft Handy 2-ton chassis, for which the L.N.E.R. has just placed its 53rd repeat order, and the G.W.R. another repeat order for 34 vehicles. Moreover, Carter Paterson & Co. Ltd. is adding another 30 to the 140 Thornycroft 2-ton vans and lorries under its control. It is an adaptable type of vehicle, too, and the latest L.N.E.R. order includes one with express parcel van bodywork to the company's specification and another with a hydraulically-operated end tipping lorry, having internal dimensions 11 ft. by 6 ft. 6 in. by 1 ft. 6 in. with a floor lined with 20 gauge steel. The chassis to the G.W.R. order will be fitted with the platform bodywork depicted in one of our illustrations, while those for Carter Paterson service are to have van bodies built by the owner for express parcels delivery work.

It was a happy inspiration which led to the selection of the name Handy for this Thornycroft type and the general design is characterised by a compactness which is in accord with such a designation. From the two views of the four cylinder engine that we reproduce, it will be observed that the engine with its monobloc construction is remarkably compact, and yet all the fittings that require attention from time to time are readily accessible. Care has been taken to ensure that the need for attention is reduced to the minimum. That can be seen in the large surface of the adjustable tappets in contact with the cams operating the side by side valves. With a bore of $3\frac{3}{4}$ in. and a stroke of 5 in. the engine has a capacity of 3,620 c.c. and although rated at 22·5 h.p. develops up to 50 h.p. It is mounted in the chassis at three points with rubber insulated supporting brackets, eliminating the possibility of stresses in the crankcase on account of frame distortion and providing a cushioning effect in the transmission of the torque reaction from the engine to the frame. The rigidity of the unit is helped by the well-ribbed deep section casting that forms the crankcase. The main bearing caps, reinforced by steel keeper plates, are secured by special studs screwed into the top half of

A view of the Thornycroft Handy lorry showing the arrangement of the sliding door

Two styles of bodywork for railway service on the Thornycroft Handy chassis. That on the left shows an express parcels delivery van for the L.N.E.R., while on the right is a lorry of which the G.W.R. has given a repeat order for 34

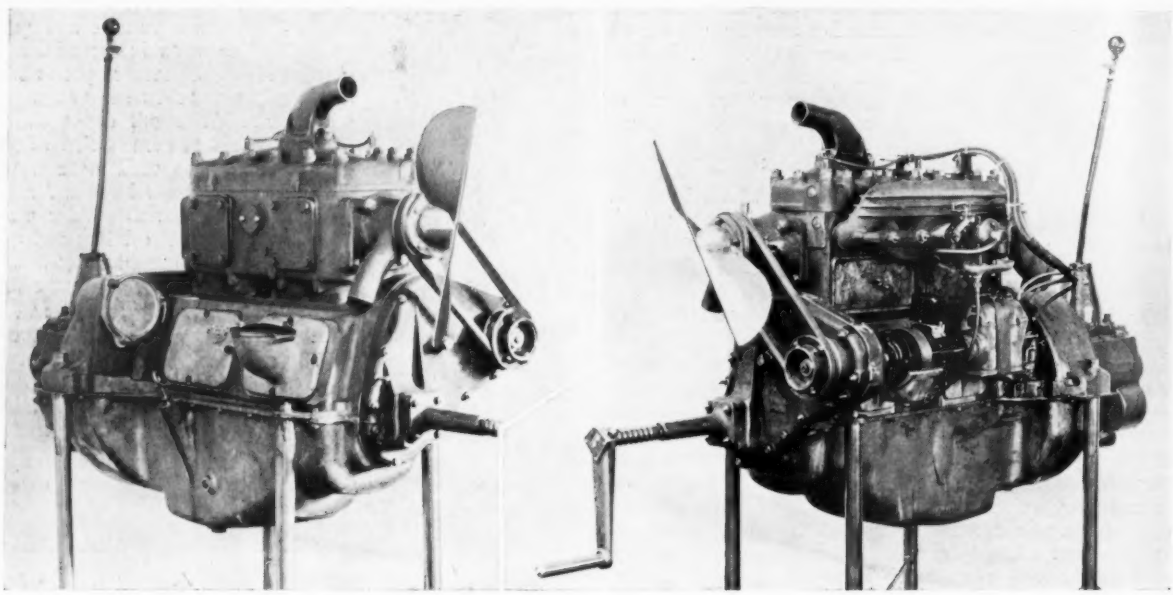
the crankcase; the bottom half is easily detachable for any inspection or taking-up of the main and big end bearings. The smooth running of the engine is to be ascribed partly to the sturdy design of the crankshaft and also to the facts that it is both dynamically and statically balanced as well as carried in three large bearings lined with white metal.

The pump for the lubrication of the engine is driven from the camshaft and all the oil-ways are either drilled or cast; the only pipe used is the one to the pressure gauge. The pump passes the oil to the main and connecting rod bearings, as well as to those of the camshaft, while the overflow from the relief valve lubricates the timing wheels. Ignition is by high-tension magneto with automatic advance. The carburettor, besides having a special starting jet and a jet for slow running, has a hot spot heated by the exhaust. Another detail worthy of mention is the device on the driving pulley which enables the tension on the belt driving the fan and water pump to be correctly adjusted.

The transmission is on well-tested lines with a single plate clutch of large diameter, having specially prepared fabric surfaces. The gearbox provides four forward speeds. The ratios are 5·71; 3·26; 1·82; the top being direct, of course, while the ratio of the spiral bevel final drive is 5·37, with the alternative of 6·44 if specially ordered. From the gearbox the drive is by a hollow propeller shaft with needle bearing universal couplings. The back axle is a steel casting with full floating differential shafts of large diameter. The cam and lever type gear makes for easy steering and that is assisted by the taper roller thrust bearings on the pivot pins which take the weight on the swivel arms.

Another Thornycroft idea that is included is the patent type of relieving plate with the holding down bolts inclined at an angle to each other with special ears on the top leaf to grip them, a scheme developed to relieve the stresses due to the flexing of the springs as well as those of driving and braking. There are 16 in. brake drums on all four wheels, and the shoes are faced with large fabric pads to ensure long life. The operation of the foot brake is assisted by a powerful vacuum cylinder. The disc wheels carry 6·50 in.-20 in. low-pressure truck tyres, with twin tyres on the back axle, with 32 in. by 6 in. straight-sided tyres, as the alternative.

The standard equipment includes a 12-volt lighting set with headlamps and a combined tail and stop light with 48 amp. hour battery and an electric horn. An electric starter can be supplied at extra charge. The standard chassis weight is 3,860 lb. The wheelbase of the forward control model is 9 ft. 6 in., and the turning circle when fully laden, 38 ft.



Two views of the four cylinder engine of the Thornycroft Handy chassis. In the left hand view is seen the flange for the electric starter when fitted. The dynamo and magneto are driven off the same shaft

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IMPROVING ROADS IN RHODESIA.—The last few monthly bulletins of Rhodesia Railways have shown that the Road Motor Services have been carrying about 400 tons of bitumen a month for the construction of road strips on various routes from Salisbury, Bulawayo, and other places.

AN EQUIVALENT CASE.—An interesting point was raised at Manchester recently when an applicant successfully sought an A carrier's licence. It was stated that the applicants, having found it necessary to speed up, were seeking to introduce a mechanical horse and two trailers. In view of this they had disposed of two of their nine horses and if the new facilities justified it a third horse would be given up. Replying to questions it was stated that the general haulage would be in and about Manchester and not farther than Hollingworth. Sir William Hart, Deputy Licensing authority, in granting the licence, held that the applicants were offering to give up an equivalent.

NOTHING LIKE RUBBER.—One particular feature of the hundred trolleybuses being built by Leyland Motors Limited for the L.P.T.B. is the unorthodox type of mudguard. Designed and produced by the Dunlop Rubber Co. Ltd., the guards are built up in sections, and all protruding parts liable to damage are made of rubber with a dull black finish. Their weight compares favourably with that of steel ones.

New Green Line Coaches

New type of bodywork, in which the influence of streamlining is strongly marked, being used for vehicles on services through London

FOLLOWING up the brief reference in THE RAILWAY GAZETTE of June 19 regarding the batch of 50 A.E.C. Regal T type coaches that the London Passenger Transport Board is placing in service on four of the Green Line routes which traverse the Metropolis we are able to reproduce on this page some further illustrations. These serve to bring out the way in which advantage is being taken of the latest knowledge in connection with streamlining to modify or, perhaps it would be more correct to say, to bring up to date, bodywork designs for work on regular services such as these vehicles have to perform. This is particularly seen in the way in which the bonnet casing is faired off at the front and sides and the method of recessing the headlamps.

One of the new Regal streamlined coaches for use on the Abbots Langley–Crawley, Watford–Reigate, Baldock–Dorking, and Chesham–Oxford Circus Green Line routes

The design of the coachwork was evolved in the L.P.T.B. works at Chiswick and the bodies were constructed by Metropolitan - Cammell-Weymann Motor Bodies Limited. They have the passenger entrance at the front of the saloon and seating accommodation is for 30 passengers; the general arrangement is seen in the view of the interior that is shown below. It can be gathered that the comfort of the passengers has been closely studied. There is the Clayton heater installed in the middle of the lower section of the front bulkhead and it is part of a thorough scheme of heating and ventilation that has been planned. The tubular framed seats are very comfortable and the upholstery includes seats of Dunlopillo porous rubber. The windows can be adjusted to any height by means of the turning handles placed above them. There is an ashtray behind each seat and racks for light luggage run along each side of the roof. A finishing touch is given by the clock, of modern design, at the top of the front bulkhead.

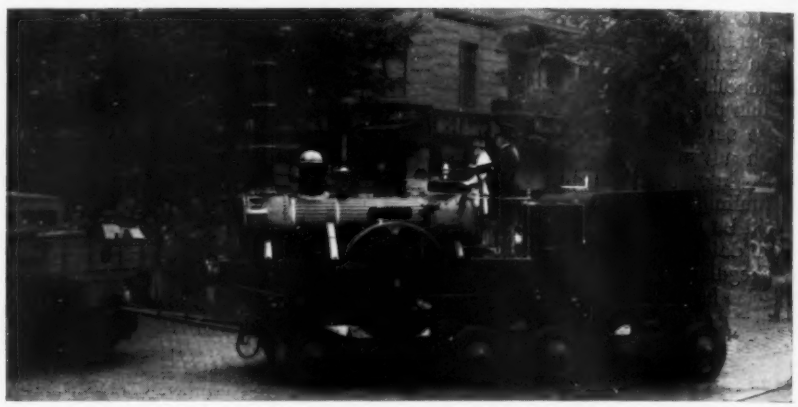
On the left the front of the new Green Line coaches is seen, with the engine compartment opened up. On the right the arrangements for the comfort of the passengers can be seen, including the Clayton heater, the Novobax ventilators in the roof, and the adjustment for the windows, which are of L.P.T.B. registered design

Transporting German Locomotives

Conveyance through streets to exhibition on special carrier bogies

DURING the preparations for the great German exhibition being held in Berlin until August 16, the inhabitants of the capital had the chance of seeing the first and last of the national railway equipment going through the streets. The German State Railway is represented at the exhibition by a splendid display including a facsimile of the *Adler*, the engine which drew the first train to run in Germany on December 7, 1835, from Nuremberg to Fürth, as well as an express locomotive of the 03 series. The original train of 1835 being no longer in existence, a reconstruction was determined upon and Stephenson's designs were followed in building the engine which was afterwards conveyed to the exhibition on the road truck as seen in the picture we reproduce. Five coaches have also been built and tickets issued for the train which, driven by the man in top hat and frock coat, goes round the exhibition, are reproductions of those used a century ago.

The 03 locomotive on view in Hall No. 1 was also conveyed through the streets from the Heerstrasse station to the exhibition, a distance of $\frac{5}{8}$ mile, via the Kaiserdamm and Masurenallee — two streets with heavy traffic. The locomotive without tender, was jacked up and then two of the 24-wheeled street carrier bogies were placed beneath. Arrived at the hall, the locomotive was lowered from the bogies and on short pieces of special track was slowly pushed into position, the distance of about 200 yards including a right-angled turn. The scheme of the road bogies for transporting railway stock through streets was described in THE RAILWAY GAZETTE of November 24, 1933.



A reconstruction of the "Adler" locomotive of a century ago being transported through the streets of Berlin to the National Exhibition in connection with the Olympic games

A Commer on the Gold Coast

THE photograph that is reproduced below is interesting as showing how British motor vehicles are assisting in bringing produce to railway depots on the Gold Coast. In this case it is cocoa that is being handled and it is collected in the villages at receiving stations where it is packed into bags each containing 140 lb. The Commer Centaurs, each drawing a trailer, carry in this way a pay load of 5 tons, half on the lorry and the remainder on the trailer. In some cases the load is taken direct to the port of shipment and the haul is frequently a long one, up to as much as 130 miles. The roads traversed are mostly laterite, though a fair proportion have been tarred. Motor transport plays a very important part in the movement of the crop, as will be imagined when it is realised that the main crop in the colony reaches some 250,000 tons, and that nearly the whole of this is handled during the peak months of the season, November, December, and January. From October to March the work is very strenuous and the African drivers frequently cover well over 200 miles in a day. The fleet is serviced by Cadbury & Fry (Accra) Ltd., and numbers more than 50 lorries with almost as many trailers. They work under the direction of two chief and one assistant European transport officers. We understand that reports as to the behaviour of the Commer vehicles under the severe conditions are very satisfactory.

A Commer Centaur 2-ton lorry engaged in transporting cocoa from Gold Coast collecting stations to the railway depots

That is not surprising when it is remembered that, as is the case with other Commer vehicles, the Centaur was designed with the definite idea of being able to give reliable service under the most strenuous conditions of road and climate to be found in overseas countries and with the minimum of expert supervision from Europeans.

A Working Showroom

BESIDES fulfilling one purpose in assisting with the transport of the products of Beckett, Laycock & Watkinson Limited, the six cylinder Morris Commercial vehicle that we illustrate, which has just been added to the company's fleet, also demonstrates the practical application of a number of Beclawat specialities. Incorporated in the driver's cab may be noted: Unit Simoon sliding windows in the sides, doors and back; Beclawat sliding door equipment embodying ball-race runner gear; Beclawat door handles; and Metalouvre slats, a novel method of building up ventilating panels.

The sliding doors may be opened from inside or outside, an advantage when loading or unloading, or parking in confined spaces. They speed up and facilitate delivery work without the danger that arises from the usual hinged door being flung open before the vehicle stops. In that connection, too, it enables the vehicle to be driven on long runs with the cab doors open so that the occupants may enjoy an abundance of fresh air and avoid any stuffiness which is sometimes a disadvantage of the forward control type of vehicle. It is also claimed for the design that it increases the accessibility of the engine for the purpose of making adjustments.

The body of the vehicle, which was built by Clement, Butler & Cross Limited, has a floor space of 12 ft. 9 in. by 6 ft. 6 in. with 1 ft. 8 in. drop sides. The Plymax panelling gives a clean, pleasing appearance to the body, while having the tailboard white and rear number plate and lamp recessed should be appreciated at night by the drivers of overtaking vehicles.

A Morris Commercial placed in service by Beckett, Laycock & Watkinson Limited

An Automatic Oil Sprayer

THE advantage of being able to direct a jet of oil to places which may not be readily accessible is now fully appreciated by users of motor vehicles, and the carrying-out of the operation is simplified by the Projectiler, a self-contained tool now being sold by the Motor Trade Equipment Co. Ltd. It embodies a pump and an air reservoir which enables a pressure to be secured sufficient, it is stated, to project a jet of penetrating or lubricating oil for a distance of 22 ft. Thus it is possible to see that oil reaches springs, shackles, bearings, and other working parts which could not otherwise be reached easily. If a fine spray is desired instead of a jet, it is a simple matter to change the nozzle; the spare nozzle finds a safe resting place in the end of the handle until it is required for use. The jet nozzle cleans itself automatically and it is not possible to overfill it; the pump is also designed so that it cannot be overloaded and on these accounts it is claimed that the Projectiler is fool-proof. It is very handy and the spring-loaded, self-closing trigger, above the handle, enables the jet or spray, whichever is being used, to be closely controlled. It is stated that the appliance has been very thoroughly tested in many ways and that it has stood up remarkably well to the roughest treatment. It is British-made and costs 37s. 6d.

The Projectiler oil sprayer

CUMBERLAND MOTOR SERVICES: INCREASE OF CAPITAL.—The authorised capital of Cumberland Motor Services Limited has been increased, by £25,000 in £1 ordinary shares, to £150,000. The business was formed as the Whitehaven Motor Service Co. Ltd. on August 8, 1912, and took the present title on June 1, 1921. The capital was increased from £1,500 to £20,000 in April, 1920; to £35,000 in August, 1923; to £60,000 in 1924; to £75,000 in 1929; to £100,000 in 1930; and to £125,000 in 1931. The company is controlled jointly by the L.M.S.R. and Tilling & British Automobile Traction Limited. On July 10 last, of the 125,000 shares issued and fully paid, 41,566 were registered in the name of the L.M.S.R. and 38,266 in that of Tilling & British. As shown in table on page 513 of our issue of March 13 last, however, the L.M.S.R. actually controls 41,666 shares, including those held by nominees. The holding controlled by Tilling & British is 41,666 shares also.

FALKIRK TRAM REPLACEMENT.—On Wednesday, July 22, the Falkirk & District Traction Company abandoned its tramways, and the services were taken over by a fleet of double-deck buses operated by W. Alexander & Sons Ltd. The Falkirk & District Traction Company came under the control of the S.M.T. group (of which Alexander is a unit) in March, 1935, when the S.M.T. bought practically all the shares of the Fife Tramway, Light, & Power Co. Ltd. at 3s. 9d. for each 5s. share; the last-named was a holding company owning the entire issued capitals of both the Falkirk undertaking and the Dunfermline & District Traction Company.

The new coal shipping staith at Jarrow viewed from the Tyne. It was opened by the Duke and Duchess of York on July 28

The ceremony of opening the plant. On the platform with the Duke and Duchess are Sir Charles Trevelyan, the Lord Mayor of Newcastle, Alderman Locke, the Duchess of Northumberland, &c.

The Duke and Duchess of York leaving the coal staith with Sir Arthur Sutherland, Chairman of the Tyne Improvement Commission. The new staith, and the opening ceremony, are described on page 202

RAILWAY NEWS SECTION

PERSONAL

SOUTHERN RAILWAY STAFF CHANGES

It is officially announced by the Southern Railway that Mr. E. C. Cox, C.B.E., M.V.O., Traffic Manager, has asked to be relieved of his duties in October next, after 53 years' service, and that his retirement will take effect as from October 10 next. The following consequent appointments have been made and date from October 11.

Mr. E. J. Missenden, at present Docks and Marine Manager, to be Traffic Manager;

Mr. R. P. Biddle, Assistant Docks and Marine Manager, to be Docks and Marine Manager;

Mr. H. A. Short, Road Transport Liaison Officer to the General Manager, to be Assistant Docks and Marine Manager.

SOUTH AMERICAN STAFF CHANGES

Mr. Ronald Leslie, General Manager of the Central Argentine Railway, has been appointed London Manager and Secretary of the company, as from October 1 next.

Mr. Donald M. Macrae, General Manager of the Cordoba Central Railway, will succeed Mr. Leslie as General Manager of the Central Argentine Railway.

Mr. T. L. Taylor has been elected Chairman of George Spencer Moulton & Co. Ltd., in place of Mr. Alexander Spencer, whose death we announced in our issue of June 19. Mr. Taylor was born in 1878, and educated at Uppingham, and Trinity College, Cambridge. He is Chairman and Managing Director of Taylor Bros. & Co. Ltd., Trafford Park Steel Works, Manchester; and a Director of the Metropolitan-Cammell Carriage & Wagon Co. Ltd., Saltley, Birmingham; of the English Steel Corporation Limited, Sheffield; and of the Yorkshire Conservative Newspaper Co. Ltd.

INDIAN RAILWAY STAFF CHANGES

Mr. J. H. Rickie, officiating Chief Engineer, Burma Railways, has been confirmed in that appointment. Mr. G. G. T. Toller, O.B.E., V.D., has also been confirmed as Deputy Chief Engineer.

Mr. I. T. St. C. Pringle, Deputy Agent, Personnel, E.B.R., has been granted 7½ months' leave as from July 2 last.

Dr. C. D. Newman has been appointed to officiate as Chief Medical Officer, E.B.R., as from June 1.

Mr. E. J. Missenden, who, as announced above, has been appointed to succeed Mr. E. C. Cox as Traffic Manager of the Southern Railway, entered the service of the South Eastern Railway in 1899, and, after several years' experience in station working, was transferred to the office of the Superintendent of the Line in 1906. He was appointed Assistant to the District Superintendent, Eastern Division, in 1912, and in 1914 was transferred as Assistant to the London District Traffic Superintendent. Mr. Missenden, after acting as London District Superintendent during 1919, was appointed London District Traffic Superintendent in 1920. Upon the amalgamation in 1923, he became London (East) Divisional Operating Superintendent, and was appointed Assistant Superintendent of Operation in 1930. In 1933 Mr. Missenden became Docks and Marine Manager, the position he will shortly vacate to become Traffic Manager.

Mr. E. J. Missenden, M.B.E.,

Docks and Marine Manager, Southern Railway, who has been appointed to succeed Mr. E. C. Cox, C.B.E., M.V.O., as Traffic Manager. Mr. Cox is retiring on October 10 next

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Among the birthday honours conferred this year by the late King Fuad, the grade of Pasha was bestowed on His Excellency Mahmoud Shaker Mohamed Bey (now Pasha), General Manager, Egyptian State Railways, Telegraphs and Telephones. His Excellency has been General Manager of the E.S.R., T. & T. for three years, during which he has pursued an energetic and progressive policy. Among other developments during this period have been the following: A general reduction of fares, the introduction of containers, and of kilometric season tickets, the co-ordination of rail and road transport in the formation of the Oriental Commercial Company, the running of excursion trains to Alexandria, Port Said, and Luxor, and of surprise trains; and a general speeding up of services, with increased comfort for first class passengers; also the acquisition of diesel and additional steam rail-cars to combat road competition, and offer a more economical service on lines which serve sparsely populated areas. Special reference is, moreover, due to the interest His Excellency has shown in improving the conditions of the subordinate staff, and the encouragement he has given to the formation of workers' syndicates. To achieve so much in so short a space of time merits reward, and His Excellency is to be congratulated on his new honour.

Mr. S. Avril, Locomotive & Carriage Superintendent, the Gaekwar's Baroda State Railways, is now in England on leave.

Lt.-Col G. I. Phillips, late Chairman, Oxford Tramway Syndicate Limited (now Oxford Transport Trust) and Director, City of Oxford Motor Services Limited, whose death we recorded in our issue of March 20, left estate valued at £49,795 (£41,722 net).

Mr. A. J. Lee—of whose presence in this country we were unaware—points out that in his biographical paragraph published in these columns last week, the name of the firm to which he was apprenticed was Richard Garrett (not Garnett) & Sons Ltd. He also sends us the following further information about himself. The date of his appointment to the Argentine North Eastern Railway was 1924, and he is a Member of the Institution of Mechanical Engineers, but is no longer an Associate Member, Institute of Engineers (India).

Mr. A. W. Swan, Sales Promotion and Publicity Manager of the United

Steel Companies Limited, has been elected Chairman of the Sheffield Publicity Club for 1936-1937.

Mr. R. P. Biddle, who, as announced earlier in these columns has been appointed to succeed Mr. Missenden as Docks and Marine Manager, Southern Railway, joined the London & South Western Railway in Jersey, where his father was the local agent of that company. In 1907 he was transferred to the Marine Department at Southampton, there gaining experience in the various branches of cross-Channel freight working. For some years he was Personal Assistant to the Chief of the Marine Freight Department, until, in 1914, he was attached to the personal staff of the then Docks and Marine Manager. Obtaining a commission in the Hampshire Regiment in 1915, he served with his battalion in India and afterwards on active service with the Egyptian Expeditionary Force, being mentioned in Lord Allenby's despatches. He was promoted to Captain and eventually demobilised in 1920, and afterwards appointed, first as Chief Clerk and subsequently, in 1924, as Assistant, to the Docks and Marine Manager. In 1927 Mr. Biddle was promoted to be Assistant Marine Manager, and in 1933 he became in addition Assistant Docks Manager, with the title of Assistant Docks and Marine Manager, from which position he is now promoted to be Docks and Marine Manager as from October 11.

Mr. R. P. Biddle,
Appointed Docks and Marine Manager, Southern Railway, as from October 11 next

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Mr. H. A. Short, M.C., M.Inst.T., who, as announced on page 199 of this issue, has been appointed Assistant Docks and Marine Manager, Southern Railway, as from October 11 next, was educated at Bournemouth School, and entered the service of the former London & South Western Railway in 1913. He joined the Army at the outbreak of the war, and from February, 1915, to May, 1917, saw active service in France, where he held various appointments with the Suffolk Regiment and on the Staff of the 35th Infantry Brigade. He was awarded the Military Cross and was wounded during the Battle of Arras. On leaving hospital he was appointed Adjutant of the Regimental Depot of the Suffolk Regiment, which appointment he held at the time of the Armistice. Mr. Short was appointed Outdoor General Assistant, L.S.W.R., in 1919, and served in that capacity in the Goods and Superintendent of the Line's Departments, and later in the Commercial Department of the Southern Railway. He was transferred to the General Manager's personal staff in 1929 for special work in connection with the company's road powers, and in 1932 was appointed Road Transport Liaison Officer, which appointment he now vacates to become Assistant Docks and Marine Manager. Mr. Short at present represents the Southern Railway on the boards of the undermentioned companies:—

Devon General Omnibus & Touring Co. Ltd.; East Kent Road Car Co. Ltd.; Hants & Dorset Motor Services Limited; Southern National Omnibus Co. Ltd.; Sutton & Co. Ltd.; Southern Vectis Omnibus Co. Ltd.; Thames Valley Traction Co. Ltd.; and Wilts & Dorset Motor Services Limited.

Mr. Short was largely instrumental in organising and raising the Transportation Troops, Royal Engineers (Supplementary Reserve) in 1924, has commanded the Southern Railway units of that Reserve since its inception, and now holds the rank of Lt.-Col. (Brevet-Colonel) on the active list of Regular Army Supplementary Reserve of Officers; he was a recipient of the Jubilee Medal last year. He is to be succeeded as Road Transport

Mr. H. A. Short, M.C.,
Appointed Assistant Docks and Marine Manager, Southern Railway, as from October 11 next

Mr. R. B. Walker,
Traffic Manager, Midland & Great Northern Joint Railways, 1925-36

Mr. T. Martin,
District Goods Manager, Liverpool, Great Western Railway, 1931-36

Liaison Officer by Mr. J. C. Chambers, B.A. (Oxon.).

Mr. R. B. Walker, A.M.Inst.T., who, as announced in our issue of July 17, is shortly retiring from the position of Traffic Manager, Midland & Great Northern Joint Railways, has been connected with that system or one of its constituents, throughout his career, dating from 1883. He began it as a junior clerk in the General Manager's office of the then Eastern & Midland Railway, which subsequently changed into, and forms the major portion of, the present joint line. After serving in various positions in the Traffic Manager's office, including that of Personal Clerk to three Traffic Managers, namely Messrs. Alfred Aslett, G. R. Curson, and W. Cunning, he was given the position of Principal Traffic Assistant to Mr. W. Marriott in 1919. Mr. Walker served for a period in France during the war. It was on January 1, 1925, that he succeeded Mr. W. Marriott as Traffic Manager, the position from which he now retires. Mr. Walker is a Serving Brother of the Order of St. John of Jerusalem.

Mr. Thomas Martin retires today, July 31, from the position of District Goods Manager, Liverpool, Great Western Railway, after a service of 47 years. He joined the Goods Department of that system at Wrexham, and later was employed at Birmingham and Kidderminster goods depôts. His very varied spheres of employment have covered much of the Great Western territory and also the outlying agencies at Sheffield, Leeds, and Blackburn, where he served as District Agent. He was subsequently appointed as Goods Agent at Walsall and later at Cheltenham. In 1921 Mr. Martin was transferred to London, and, after a short period as Chief Clerk to the South Lambeth Goods Agent, was promoted to a similar post at Paddington. Four years later he was appointed Chief Clerk and Assistant to the London District Goods Manager, and in 1927 went to Birmingham as Goods Superintendent; he returned to London in 1929 to take over a similar post at Paddington Goods. In 1931 Mr. Martin was appointed to the position of District Goods Manager at Liverpool, from which he now retires. We unite with his many friends in the business world and in the company's service in wishing Mr. Martin enjoyment in his retirement.

The retirement is announced of Driver H. Gutteridge, of King's Cross shed, L.N.E.R., who as the regular driver of *Papyrus* was in charge of that engine on the down record run in March, 1935, when Newcastle was reached for the first time in 3 min. under 4 hr., in spite of an intermediate stop and check for adverse signals. The minimum speed on the 8 miles climb of 1 in 200 and 1 in 178 to Stoke box was 75 m.p.h., the load behind the tender being 217 tons. Driver Gutteridge was also a regular Royal Train driver, having been responsible for King George's trains on 24 occasions and for those of other royalties.

We regret to record the death, on July 25, of Mr. Donald Maxwell, F.R.S.A., the artist and author, who was best known to our readers as the designer of Southern Railway posters.

Colonel the Rt. Hon. Lord Wigram has been elected a Director of the Midland Bank Limited.

Mr. Jack Spencer has been appointed Managing Director of George Spencer Moulton & Co. Ltd.

L.N.E.R. Appointments

The London & North Eastern Railway announces the following appointments:—

Mr. C. H. Nicholson, Mechanical Engineer, Grimsby and Immingham Docks, to be District Docks Machinery Engineer, Hull, in succession to Mr. W. T. Athey, who will retire from the service in August.

Mr. E. Golightly, Assistant to the Mechanical Engineer, Hull Docks, to be District Docks Machinery Engineer, Grimsby & Immingham in succession to Mr. Nicholson.

Staff and Labour Matters

Since the public hearing closed on Monday, July 20, the Railway Staff National Tribunal, under the chairmanship of Sir Arthur Salter, has met on several occasions, in private, to consider the evidence submitted in connection with the wage claims of the National Union of Railwaymen and the Railway Clerks' Association. Although no official announcement has been forthcoming it is confidently expected that the decision of the tribunal will be published today (Friday).

Parliamentary Notes

Manchester Ship Canal Bill

The Bill promoted by the Manchester Ship Canal Company was approved on Tuesday by a Select Committee of the House of Commons on Unopposed Bills, and on Wednesday it was read a third time. The bill—in addition to specifying 10 years as the limit of time within which the railways, authorisation for which is sought in the bill, should be constructed—allows an extension of a further 10 years for the completion of railways, powers for which were originally procured in an Act of 1926.

Sale of Lost and Unclaimed Property.—Lost and unclaimed property in the hands of the Southern Railway at the end of March last, is to be sold by auction on October 5, 6, and 7.

Questions in Parliament

Accidents to Railway Employees

Mr. Ellis Smith on July 22 asked the Minister of Transport if he could give the number of accidents to employees on the railways during the first six months of 1924, 1934, 1935, and 1936; and had he received a report of the accident at Preston on March 11 and, if so, was it proposed to take any action.

Mr. Hore-Belisha.—The records of railway accidents are compiled for yearly periods, and will be found in the annual reports to the Chief Inspecting Officer of Railways. The accident at Preston on March 11 was the subject of an official inquiry by one of my officers, and his report and recommendations have been referred to the railway companies.

The M. & G.N. Joint Line

Mr. Thomas Cook asked the Minister of Transport if he had any information with regard to the proposal by the L.N.E.R. to take over the line passing through Norfolk at present controlled by the Midland and Great Northern Company, with particular reference to the future of the works at Melton Constable.

Mr. Hore-Belisha.—I am informed that the L.N.E.R. is in fact taking over responsibility for this line and that the detailed arrangements for the future conduct of the engineering works at Melton Constable have yet to be made.

Railway Electrification

Sir Arnold Gridley on July 28 asked the Minister of Transport whether he could say when further railway electrification schemes in the provinces would be decided upon, and in and around Manchester in particular; and would he give brief particulars and the estimated costs.

Captain A. Hudson (Parliamentary Secretary).—The responsibility for initiating such schemes rests with the railway companies, and the Minister of Transport is unable to anticipate their intentions.

New Railway Works

Mr. Short on July 29 asked the Minister of Transport if he could now give a list of the works scheduled under the railway agreement which were now in progress of construction.

Mr. Hore-Belisha.—As the railway Bills are either awaiting or have just received the Royal Assent, the hon. gentleman will appreciate that his question is premature, but I will obtain from time to time for him information in regard to any works in which he is interested.

Doncaster Station

Mr. Short asked the Minister of Transport if he could now state when the reconstruction of the L.N.E.R. station at Doncaster would be begun.

Mr. Hore-Belisha.—The preliminary work is proceeding in anticipation of the company's Bill receiving the Royal Assent.

The New Coal Shipping Staith at Jarrow

(*See illustrations on page* 198)

Her Royal Highness, the Duchess of York, who was accompanied by the Duke of York, visited Tyneside on July 28, and publicly opened the coal shipping staith at Jarrow, which is to be used primarily for coal produced by the collieries of John Bowes & Partners Limited, of which the Duchess's brother, Lord Glamis, is Chairman. Their Royal Highnesses, with Sir Arthur M. Sutherland, Bart., Chairman of the Tyne Improvement Commission, the Lord Mayor of Newcastle (Alderman W. Locke) and other guests, travelled from Newcastle Quay in the steamer *Sir William Stephenson* down the Tyne to Jarrow, where a very large assembly witnessed the inaugural ceremony. The staith has been constructed by the Tyne Improvement Commission, and its equipment is of the latest design. It has been erected to improve the facilities for the shipment of coal and coke, and has a river frontage of 1,309 ft., so that two large vessels can be placed alongside and loaded simultaneously. The depth of water alongside is 25 ft. at low water, or 40 ft. at high tide. There is provision for a further increase of five feet in depth if and when required. A tier of moorings 500 ft. long is provided at the east end of the staith for waiting vessels. Mains have been laid, so that ships may be provided with fresh water, and the necessary fire-extinguishing appliances have been installed.

John Bowes and Partners Limited, which owns a large number of pits in North Durham, and is at present erecting an important coke-making plant on the outskirts of Jarrow, is to have the preferential right of user of the staith, and it is expected that the firm will ship more than one million tons of coal a year. Coal and coke from other collieries, however, may be shipped by arrangement with the company, as there are adequate railway connections to the main lines. Coal will be brought from the Bowes collieries in wagons along railways belonging to the company and on to new standage sidings situated about a quarter of a mile from the river. Here the accommodation is provided for 2,000 tons of coal in 20-ton wagons, while empty standage is afforded for about 127 similar wagons.

Full wagons gravitate along the standage sidings to discharging hoppers, from which the coal is fed by means of jigging feeders on to three 42-in. belt conveyors about 980 ft. long. The conveyor galleries, shipping towers, and so forth, are electrically lighted, and each tower, together with its associated conveyors, is capable of dealing with 500 tons of coal an hour at a belt-speed of 350 ft. a min. The three shipping towers are of lattice steelwork, carried on two four-wheeled bogies 30 ft. apart, to provide a radial movement of about 90 ft. at the end of the loading arm. Coal can be loaded at a maximum height of 65 ft. above high water, and at a maximum distance of 60 ft. beyond the edge of the quay. Power-driven Handcock anti-breakers, 33 ft. between tumblers, are provided at each shipping tower, and all possible precautions are taken to prevent breakage of coal. The whole of the plant is electrically driven by 3-phase, 50 cycle a.c. at 440 volts supply, which is taken from a sub-station on the site.

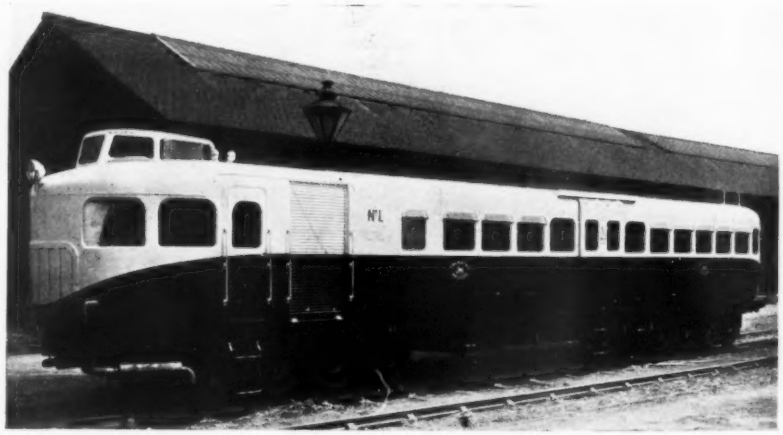
The staith was designed by, and has been carried out under the supervision of, Mr. R. F. Hinemarsh, M.Inst.C.E., Engineer-in-Chief to the Tyne Commission, in consultation with Major E. H. Kirkup, M.Inst.M.E., of John Bowes and Partners Limited. The details of the reinforced concrete work were prepared by Messrs. L. G. Mouchel & Partners.

At Newcastle, the Tyne Improvement Commission entertained a large number of guests at a luncheon. The Chairman of the port authority, Sir Arthur M. Sutherland, Bart., presided, and those present included the Duke and Duchess of York, the Duke of Northumberland and his mother, the Duchess of Northumberland, the Marquess of Londonderry, Earl and Countess Grey, Lord and Lady Glamis, Sir C. P. Trevelyan, the Lord Mayor and Lady Mayoress of Newcastle, and the Bishop of Newcastle (Dr. Bilbrough).

Sir Arthur Sutherland, in proposing the toast of the Duke and Duchess of York, referred to the shipping progress of the Tyne and said ports, like industries, could not stand still; they must be improved. International trade was today carried on under difficulties unparalleled in living memory, but in all their difficulties they were strengthened and fortified by ties with the Royal family whose sympathy and helpfulness were ever manifest.

The Duke of York, in responding, congratulated the Tyne Commission on pursuing its policy of enterprise and expansion. Its confirmed optimism was shown in the new staith which he hoped would further relieve unemployment. There were grounds for hope and confidence in the future prosperity of the river. He trusted that the new deep-water quay which the Commissioner for Special Areas was helping the port authority to build between Jarrow and South Shields would bring more and larger ships to the Tyne.

Coventry-Michelin Railcar Run



A special return trip was made by the 275 b.h.p. Coventry-Michelin pneumatic-tyred railcar (described in our issue of June 19) between Rugby and Wansford on July 28 with a party of press representatives. Organised by the builder of the car, the Coventry-Michelin division of Armstrong-Siddeley Motors Limited, in conjunction with the L.M.S.R., the 90-mile trip demonstrated the abilities of the pneumatic-tyred car in smooth and noiseless operation, and also in rapid acceleration and deceleration. The outward trip of 44·75 miles over undulating grades occupied 52 min. 13 sec. with a minimum of 49 m.p.h. up a 1¼-mile grade of 1 in 90. On the return journey the time taken, inclusive of several slows, was 54 min. 45 sec. and actually the maximum speed attained was 72¼ m.p.h. The party was brought back non-stop from Rugby to Euston in a special steam train which covered the 82·3 miles in 83 min. 46 sec.

Arrangements are now being made for this Coventry-Michelin car, and also a second vehicle which is almost completed at the works of the builder, to take up a turn of regular operation at the beginning of August. The first car has been averaging 5 m.p.g. of petrol on its numerous test runs between Rugby and Wansford, and its cruising speed with half throttle is in the neighbourhood of 60 m.p.h.

Valuation of Railways for Rating

(*See editorial note on page* 173)

Discussions have recently been taking place between representatives of the amalgamated railway companies and representatives of the major local authorities, through their associations, with a view to agreeing rating assessments for the undertakings of the L.M.S.R., L.N.E.R., and G.W.R. which might be put before the Court, or the Railway Assessment Authority, as the case might be, for their consideration and approval. These discussions have now ended in agreements upon the following net annual values:—

	For the quinquennial period 1931–1936	For the quinquennial period 1936–1941
	£	£
L.M.S.R. ..	1,750,000	1,500,000
L.N.E.R. ..	1,100,000	1,100,000
G.W.R. ..	1,650,000	1,400,000

The figure for the L.N.E.R. for the quinquennial period 1931-36 will require to be submitted for the approval of the Railway and Canal Commission, as there are at present outstanding appeals by certain local authorities against the figure of NIL at which the assessment for that company for 1931-36 at present stands in the relevant part of the first railway valuation roll as "completed" by the Railway Assessment Authority. These appeals will now, presumably, be withdrawn or settled and the "agreed" figure of £1,100,000 mentioned above presented to the Court for its consideration and determination. The Railway Assessment Authority has intimated that, so far as it is concerned as respondents to these appeals, it will not offer any objection to a settlement of the appeals accordingly.

The figures for the L.M.S.R. and G.W.R. for the years 1931-36 remain to be settled by the Railway Assessment Authority, and this involves the "completion" by that authority of the parts of the first railway valuation roll relating to those two companies. The authority has intimated that the "agreed" figures mentioned above for these two companies for the years 1931-36 are such as it can adopt in that connection.

The figures for all the companies (including the Southern Railway) for the period 1936-41 remain to be settled by the Railway Assessment Authority, and this involves the issue of a second railway valuation roll in all its stages. The authority has intimated that it is prepared to insert in the "draft" of the parts of the second roll relating to the L.M.S.R., L.N.E.R. and G.W.R. for the period 1936-41 the "agreed" figures specified in the second column above. No figure for the period 1936-41 for the Southern Railway has been "agreed" in the discussions referred to, and this is being considered by the Railway Assessment Authority and will be decided in due course. The net annual value for that company for the period 1931-36 has already been fixed by the Courts at £1,077,131.

The totals of the existing net annual values at present in the local valuation lists that will require to be altered with retrospective effect to 1931 are approximately as follows:—L. M. S. R. £3,600,000, L. N. E. R. £2,600,000, G.W.R. £2,300,000, S.R. £1,840,000. The alterations of these figures cannot be carried out until the respective parts of the first railway valuation roll have been "revised" by the Railway Assessment Authority. It is hoped that, as regards the Southern Railway, "revision" will have taken place by the end of September of this year; in the case of the L.N.E.R., by the end of the current year; and, in the case of the L.M.S.R. and G.W.R., as early as practicable during next year.

The L.M.S.R. and L.N.E.R. are also assessed to rates in respect of their railway and other property in Scotland, but these assessments are not affected by the agreements referred to above.

London History—By London Transport

Londoners, some of whom may not yet have conceded the freedom of their capital to the L.P.T.B., will feel increased cordiality towards the board in view of its latest posters dealing with the historic area wherein it is privileged to operate. These are four in number, and each contrasts successive stages in Metropolitan development.

Two of them deal with the half-century between 1800 and 1850, comparing the scattered communities around the central core that persisted during the age of horse conveyances, with the increase of population and the knitting together of the suburbs that followed the coming of the steam railway. One of these posters shows maps of the London area and its communications at the periods in question, and the other—carrying the explanatory letterpress—has for illustrations broadside views of a stagecoach and a G.W.R. locomotive of the same periods.

A similar scheme is followed in the two posters illustrating the growth and progress of London between 1914 and the present year. Underground railways now make their appearance on the maps, and their extensions into former country districts are strikingly shown. The final paragraph of the letterpress concludes as follows: "London Transport, unifying at one stroke every branch of passenger transport in London, brings order and control to the daily travel of millions." Let us hope that these sentiments, thus boldly presented to those best qualified to judge of their veracity, will be rewarded with unanimous agreement.

GOOLE SWING BRIDGE—The L.N.E.R. has arranged to renew the masts which carry the cables and telegraph wires over the River Ouse beside the swing bridge at Goole. The present masts are wrought-iron structures rising 112 ft. above the ground; they are to be replaced by steel masts 130 ft. high. It is expected that the additional height will enable all vessels to pass beneath the cables with ease.

AIR OPERATORS AMALGAMATE.—The amalgamation of British Continental Airways Limited and British Airways Limited, subject to the shareholders' approval, has been announced. British Airways, in addition to being a competitor of Railway Air Services Limited over internal routes, maintains certain continental mail services with the aid of a Government subsidy. Before amalgamation, the two companies were known to be competing for the contract for a new South American mail service.

LONDON AIRPORT STATION.—Without comment, the Westminster City Council, on July 23, adopted reports concern the proposed new station for Imperial Airways at Victoria station. The Law and Parliamentary Committee reported the receipt of a letter from the Southern Railway Company notifying the council that the company desired to grant to Imperial Airways Limited. a building lease of land on the east side of Buckingham Palace Road, South of Elizabeth Bridge, for the erection of offices and a station to facilitate transport by rail of air passengers to and from aerodromes outside London. The Works Committee stated that it saw no objection to the plans of the proposed building.

LONDON TRANSPORT SPORTS GALA.—Five London Transport track records were broken and many titles changed hands at the eighth annual sports gala held at Chiswick works on Saturday last by the London Transport (Central Buses) Sports Association. B. E. Sales (Metropolitan Line), who retained the 100-yd. championship for the third year, created a record by winning the final in even time. Other notable record breakers were H. W. Shields (Central Tramways) and G. T. Galloway (Chiswick General) who won the half-mile and two-mile walk respectively. Chiswick General, with a score of 47 points, was an easy winner of the Aggregate Cup. Other placings were: District Line, 24 points; Metropolitan Line (holders), 20½ points; Tramways Central 13 points; Central Buses, 10 points; and Country Buses, 1½ points. In the unavoidable absence of Lord and Lady Ashfield, the prizes were presented by Brig.-Gen. Sir Henry P. Maybury, a Member of the board.

NOTES AND NEWS

Central Uruguay Railway of Monte Video.—The stockholders committee appointed under the scheme of arrangement sanctioned on July 15, 1935, has, under the powers conferred upon it by the scheme, extended the moratorium for a further period until September 30, 1937.

Republicans Seize Northern of Spain Railway.—Messages from Madrid indicate that a republican committee has taken over control of all railway services in that city, and dismissed the general manager and other chief officers of the Northern of Spain Railway, replacing them by its own nominees.

New Blackhall Colliery Station, L.N.E.R.—A new station, at Blackhall Colliery, was opened on July 24 by County Councillor E. Chicken. Authority to begin work on the station was given by the L.N.E.R. at the end of May and the engineers started work on it on July 6, or only 18 days before it was opened.

New Motorcar Channel Ferry.—According to a press message from Brussels, a cross-Channel steamer for the transport of motorcars will be put into operation next Saturday, August 1, on the Dover-Ostend service. Formerly the *Ville de Liege*, the vessel has been renamed *The London Stamboul*, and is equipped to carry 60 cars and 200 passengers, with second-class accommodation for chauffeurs.

Congo Railway Company.—The Congo Railway Company, with the approval of the shareholders and by virtue of a Royal Decree, has been wound up, and as from June 1, 1936, the administration and working of the railway from Ango-Ango to Léopoldville, with its branches, has been taken over by the Office d'Exploitation des Transports Coloniaux (Otraco) on behalf of the colony. The headquarters of the administration will remain at Thysville (Congo Belge).

High-Speed Telegraphs for the L.N.E.R.—Nine years ago the first Creed high-speed telegraph circuit was installed between London (Liverpool Street) and Cambridge and Norwich. Other circuits have followed between York and Newcastle; Edinburgh and Glasgow; York, Sunderland, Middlesbrough and Darlington; and Hull and Leeds; and now 17 additional machines are to be installed as follow: King's Cross 1, Liverpool Street 1, Sheffield 1, Hull 2, West Hartlepool 1, Doncaster 1, York 7, Newcastle 2, and Edinburgh 1.

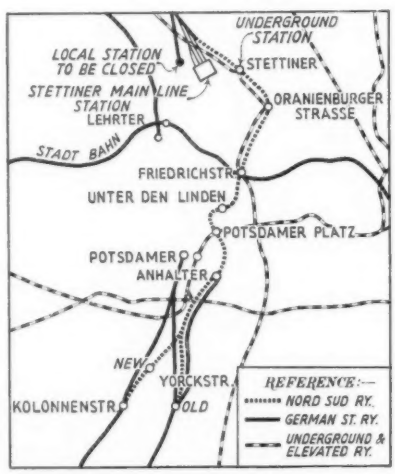
All-Electric Show Train.—To serve the country towns which normally cannot afford electricity showrooms an all-electric show train has been built. It comprises two full-sized coaches, both attractively painted and decorated. One is to be used for displaying the lighter machines and parts, such as meters and overhead fittings, and the other will contain heavier items and a generating plant. Travelling programmes extending over two months have been arranged and the railway authorities have consented to allow platform space between journeys.

Further London Trolleybus Routes.—On Sunday, August 2, trolleybus routes 645 (North Finchley to Edgware, via Cricklewood) and 660 (Hammersmith to North Finchley) will be inaugurated. Tram services 45 (Cricklewood Broadway to Whetstone) and 60 (Paddington to North Finchley) will be used for the last time on Saturday night.

Mishap at Postland, L.N.E.R.—As the 6.50 p.m. express from March to Doncaster was passing through Postland station at about 50 m.p.h., on July 27, a derailment occurred, and the train parted between the van following the engine and the remainder of the coaching stock. None of the nine passengers was hurt, but the driver, fireman, and guard were slightly injured. There was considerable damage to the rolling stock.

L.M.S.R. Evening Trips to the Sea.—Evening rail trips enabling Londoners to spend nearly five hours beside the sea, are being run by the L.M.S.R. every Saturday and Sunday from Fenchurch Street, Barking, Plaistow, Upton Park, East Ham, Becontree, Dagenham, and certain other East London stations to Southend-on-Sea. The return fares from all points do not exceed 2s., and, on the presentation of the return half of their rail tickets, passengers by these excursions are given free admission to the Southend kursaal and gardens.

New Berlin Underground Railway.—On Tuesday last, July 28, the first section of the new Nord-Sud underground line in Berlin was opened for public traffic. This section extends from the Stettiner station to Unter den Linden. Work on the remaining part of the line, southwards to the Anhalter station via Potsdamer Platz, has been temporarily suspended in order to avoid spoiling the appearance of important streets during the Olympic Games. The first day's working was unfortunately marred by a slight collision between two trains near Friedrichstrasse station in which a few passengers were slightly hurt.



Sketch map of the new Nord-Sud underground railway, Berlin

Rail and Road to Whipsnade.—On Wednesday last, July 29, the London Passenger Transport Board inaugurated a double-deck bus service to Whipsnade Zoological Park from St. Albans City station, where connection is made with L.M.S.R. trains to and from St. Pancras. Through train and bus tickets are issued. Holders of Green Line coach return tickets may return to London by the new bus and train service.

The Reversed Vesting Order in Ulster.—By a majority, the Court of Appeal of Northern Ireland dismissed, on July 28, the appeal of the Northern Ireland Road Transport Board against the finding of Mr. Justice Megaw that the board had no right to acquire compulsorily the buses run by Mr. Patrick Murphy in connection with his hotel business. We referred editorially (on page 849 of our May 1 issue) to the original decision, now upheld, that the vesting order under which the board took over the two Murphy buses in December last should be annulled.

Agreed Charges.—A legal notice published on page 207 shows the procedure to be followed in applications for the approval of agreed charges lodged from time to time with the Railway Rates Tribunal. Applications may be inspected at the office of the tribunal, Bush House, Aldwych, W.C.2; at the Railway Clearing House, 123, Seymour Street, N.W.1; and at specified railway offices at Birmingham, Cardiff, Exeter, Leeds, Leicester, Manchester, Southampton, York, Aberdeen, Edinburgh, and Glasgow. A copy of each application (1s. post free) can be obtained from Mr. G. Cole Deacon, Secretary, Rates and Charges Committee, 35, Parliament Street, S.W.1. Public notice of each application will be given from time to time and will state the time within which notices of objection must be filed with the Registrar of the tribunal and copies sent to Mr. Cole Deacon.

Railways and Coastal Shipping.—An application by the Great Western Railway Company to the Railway Rates Tribunal on July 24, for sanction to exceptional rates in the West Country grain trade was opposed by the Chamber of Shipping of the United Kingdom. The opponents contended that the grain (List E) traffic between the Bristol Port Group and Truro, Penryn, and Penzance, for which the new exceptional rates were sought, had hitherto been carried by coastal carriers. It was further submitted that the proposed rates were 57, 58, and 56 per cent., respectively, below standard, and if

granted would place coastal carriers at an undue and unfair disadvantage. The tribunal refused the Chamber of Shipping leave to object to the application. In support of the application it was said that up to about four years ago, a considerable amount of traffic was carried by the railway from Plymouth to Truro, Penryn, Penzance, and other Cornish towns. It had considerably decreased, and now the railway was only hoping to get back traffic which the coastal steamers carried. Evidence was given that in 1935 the amount of grain carried by the railway was less than 3,500 tons. The tribunal sanctioned the new rates.

Nyasaland Transport Developments.—At the annual meeting on July 27 of Nyasaland Railways Limited, the Chairman (Mr. W. M. Codrington), said that the incorporation of the marine service on Lake Nyasa, hitherto operated by the Nyasaland Government, completed the last link in the chain, 875 miles long, between Beira and the head of Lake Nyasa. It had been agreed in principle that during the first ten years, the Nyasaland Government would undertake to give traffic to the lake service at ordinary rates up to an amount of £2,500 per annum. If Government traffic did not reach this figure and if the service was being operated by the company at a loss, the Government would pay a subsidy equal to the difference between the Government traffic and the above amount of £2,500.

Road Accidents.—The Ministry of Transport return for the week ended July 25 of persons killed or injured in road accidents is as follows. The figures in brackets are those for the corresponding period of last year :—

	Killed, including deaths resulting from previous accidents		Injured	
England ...	120	(97)	4,468	(4,380)
Wales	5	(3)	211	(255)
Scotland ...	7	(11)	402	(468)
	132	(111)	5,081	(5,103)

The total fatalities for the previous week were 154, compared with 123 for the corresponding period of last year.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 30th Week			Totals to Date		
	1936	1935	Inc. or Dec.	1936	1935	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,917 mls.)						
Passenger-train traffic...	717,000	675,000	+ 42,000	14,023,000	13,875,000	+ 148,000
Merchandise, &c. ...	458,000	438,000	+ 20,000	14,164,000	13,365,000	+ 799,000
Coal and coke ...	201,000	187,000	+ 14,000	7,234,000	6,892,000	+ 342,000
Goods-train traffic ...	659,000	625,000	+ 34,000	21,398,000	20,257,000	+1,141,000
Total receipts	1,376,000	1,300,000	+ 76,000	35,421,000	34,132,000	+1,289,000
L.N.E.R. (6,332 mls.)						
Passenger-train traffic...	447,000	431,000	+ 16,000	9,092,000	9,043,000	+ 49,000
Merchandise, &c. ...	313,000	307,000	+ 6,000	9,610,000	9,262,000	+ 348,000
Coal and coke ...	196,000	176,000	+ 20,000	6,947,000	6,610,000	+ 337,000
Goods-train traffic ...	509,000	483,000	+ 26,000	16,557,000	15,872,000	+ 685,000
Total receipts	956,000	914,000	+ 42,000	25,649,000	24,915,000	+ 734,000
G.W.R. (3,746½ mls.)						
Passenger-train traffic...	294,000	294,000	—	5,812,000	5,796,000	+ 16,000
Merchandise, &c. ...	197,000	190,000	+ 7,000	5,632,000	5,416,000	+ 216,000
Coal and coke ...	97,000	94,000	+ 3,000	3,023,000	2,969,000	+ 54,000
Goods-train traffic ...	294,000	284,000	+ 10,000	8,655,000	8,385,000	+ 270,000
Total receipts	588,000	578,000	+ 10,000	14,467,000	14,181,000	+ 286,000
S.R. (2,154 mls.)						
Passenger-train traffic...	410,000	409,000	+ 1,000	8,668,000	8,625,000	+ 43,000
Merchandise, &c. ...	67,500	64,000	+ 3,500	1,842,500	1,828,500	+ 14,000
Coal and coke ...	27,500	25,000	+ 2,500	942,500	884,500	+ 58,000
Goods-train traffic ...	95,000	89,000	+ 6,000	2,785,000	2,713,000	+ 72,000
Total receipts	505,000	498,000	+ 7,000	11,453,000	11,338,000	+ 115,000
Liverpool Overhead ... (6½ mls.)	1,294	1,280	+ 14	34,967	34,767	+ 200
Mersey (4½ mls.) ...	3,807	3,845	— 38	120,516	119,539	+ 977
*London Passenger Transport Board ...	548,200	532,700	+ 15,500	2,240,800	2,197,900	+ 42,900
IRELAND						
Belfast & C.D. pass. (80 mls.)	4,397	4,094	+ 303	72,946	74,334	— 1,388
,, ,, goods	642	560	+ 82	16,530	14,908	+ 1,622
,, ,, total	5,039	4,654	+ 385	89,476	89,242	+ 234
†Great Northern pass. (543 mls.)	15,550	14,000	+ 1,550	288,800	280,750	+ 8,050
,, ,, goods	9,250	10,000	— 750	278,700	268,200	+ 10,500
,, ,, total	24,800	24,000	+ 800	567,500	548,950	+ 18,550
†Great Southern pass. (2,076 mls.)	47,199	46,604	+ 595	956,409	943,270	+ 13,139
,, ,, goods	39,755	35,780	+ 3,975	1,178,991	1,112,329	+ 66,662
,, ,, total	86,954	82,384	+ 4,570	2,135,400	2,055,599	+ 79,801

* 4th week. † 29th week.

British and Irish Railways Stocks and Shares

Stocks	Highest 1935	Lowest 1935	Prices July 29, 1936	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	44½	51½	+3½
5% Con. Prefce. ...	124	108	122	+1½
5% Red.Pref.(1950)	117	106¾	111½	—
4% Deb.	118½	108	114½	+1½
4½% Deb.... ...	122	110	116½	—
4½ Deb.	129½	118	124½	+3
5% Deb.	140¼	130	136½	—
2½% Deb.... ...	82¼	68½	76	—
5% Rt. Charge ...	137	128	133½	+1
5% Cons. Guar. ...	136¾	120½	133	+½
L.M.S.R.				
Ord.	25 5/16	16	26½	+1½
4% Prefce. (1923)	58¼	43½	75	+2½
4% Prefce. ...	87½	73½	89	+½
5% Red.Pref.(1955)	107	97¾	107½	—
4% Deb.	110¼	99½	106½	—
5% Red.Deb.(1952)	119 11/16	111 5/16	116½	—
4% Guar. ...	105⅝	95½	104	+½
L.N.E.R.				
5% Pref. Ord. ...	15⅞	8¼	10½	—
Def. Ord.	7 9/16	4¾	5⅛	—
4% First Prefce.	74¾	48	68½	—
4% Second Prefce.	31¾	16¼	26	+½
5% Red.Pref.(1955)	92¼	71	93½	+1
4% First Guar. ...	103 11/16	93	101½	+1
4% Second Guar.	98¾	82½	95½	+1
3% Deb.	86	75	82	—
4% Deb.	109¼	98½	105½	—
5% Red.Deb.(1947)	118¼	106½	111½	—
4½% Sinking Fund Red. Deb.	112½	108	109	—
Southern				
Pref. Ord.... ...	87½	69⅜	93	+1
Def. Ord.	25 13/16	16¾	21½	−1
5% Prefce. ...	124	108¼	122	+½
5% Red.Pref.(1964)	117¾	109½	118½	—
5% Guar. Prefce.	136½	121½	132½	—
5% Red.Guar.Pref. (1957)	121¼	112½	119½	—
4% Deb.	116¾	107	113½	+1½
5% Deb.	138	130¼	135½	—
4% Red. Deb. 1962–67	115	106½	111½	+½
Belfast & C.D.				
Ord.	9	4	5	—
Forth Bridge				
4% Deb.	111¼	104¼	104½	—
4% Guar.	109⅞	104	104½	—
G. Northern (Ireland)				
Ord.	20	7	15½	−½
G. Southern (Ireland)				
Ord.	57½	14½	59½	—
Prefce.	50	25¼	56	−2
Guar.	88¾	51¼	85	—
Deb.	86¼	70	91	+½
L.P.T.B.				
4½% "A" ...	130	119¾	122½	—
5% "A" ...	139¾	130	134½	—
4½% "T.F.A." ...	113¾	108	109	—
5% "B" ...	131½	122¾	128½	—
"C"	109½	91	105	—
Mersey				
Ord.	23⅛	9¼	25½	—
4% Perp. Deb. ...	100½	93½	98*	—
3% Perp. Deb. ...	75½	67	74½*	—
3% Perp. Prefce.	62	47¼	64½	—

* ex dividend

CONTRACTS AND TENDERS

Large L.N.E.R. Wagon Building Programme

The L.N.E.R. directors have approved an extensive programme of new construction of freight wagons of various types. Recently in view of the actual and prospective activity in the coal, iron and steel trades, the L.N.E.R., as recorded in issues of THE RAILWAY GAZETTE of July 3, July 10, and July 17, has placed special contracts for 12-ton open goods wagons, 12-ton hopper coal wagons, and 20-ton hopper coal wagons. The new programme provides for building during the forthcoming year and has been approved only after a special survey of the existing and prospective conditions in the many branches of industry served by the L.N.E.R. It has taken into account the withdrawal of a number of existing wagons not of the most modern design and provides for the construction of 7,550 open goods wagons, 300 of which will be specially constructed for the conveyance of road-rail containers; 430 covered goods wagons, all of which will be fitted with the continuous brake; 150 special wagons for the conveyance of fish traffic which is showing a steady increase in tonnage forwarded over the L.N.E.R.; 1,265 bolster wagons for the conveyance of iron and steel and timber traffic, 15 of which will be of a special design for the conveyance of exceptionally long girders and steelwork up to 90 ft. in length; 700 cattle wagons for the conveyance of livestock; 1,600 coal wagons of which 1,200 will be of a capacity between 20 and 32 tons; 14 special trolley trestle wagons for the conveyance of exceptional loads; 250 goods brake vans; 59 horse boxes of modern design, and 300 large covered containers to cater for the steady increase in the demand for door to door transport by the container method. Excluding the 300 containers, this programme provides in all for the construction of 12,018 vehicles, and if contracts recently placed are taken into account, the total number of new vehicles to be constructed is 16,218. This will undoubtedly provide employment for a great number of men, especially so, as numbers of existing wagons not up to modern requirements will be broken up.

Kitson & Co. Ltd. has received an order from the Crown Agents for the Colonies for three boilers required for 2-8-4T locomotives, Palestine Railways.

Hurst Nelson & Co. Ltd. has received an order from the Crown Agents for the Colonies for six metre-gauge underframes and bogies, complete with wheels and axles, for the Iraq Railways.

The New Switchgear Construction Co. Ltd. has received an order from the Assam-Bengal Railway, to the inspection of Messrs. Rendel, Palmer & Tritton, for three truck type switchgear units for the main a.c. switchboard at the Pahartali works power house.

The Vulcan Foundry Co. Ltd. has received an order from the Bengal North Western Railway for 36 locomotive crank axles to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

Diesel-Electric Locomotives Ordered

Harland & Wolff Limited has received an order from the Buenos Ayres Great Southern Railway for two 900-b.h.p. broad-gauge diesel-electric locomotives for main-line service.

Leyland Motors Limited has received orders from the London Passenger Transport Board for 100 oil-engined Titan passenger vehicles, and ten of these will be fitted with the Leyland hydraulic torque convertor.

Leyland Motors Limited has recently received the following orders from railway associated road transport operators: Southdown Motor Services Limited, 26 Tigers; Maidstone & District Motor Services Limited, 21 oil-engined Tigers; Devon General Omnibus & Touring Co. Ltd., 48 Lions; and New South Wales Road Transport, two Titans.

Boilers for India

Nasmyth, Wilson & Co. Ltd. has received an order from the Bengal-Nagpur Railway for 14 superheated boilers for HSM class locomotives.

The North British Locomotive Co. Ltd. has received an order from the Bengal North Western Railway for six superheated boilers for P class locomotives, to be supplied to the inspection of Messrs. Rendel, Palmer & Tritton.

Boilers for South America

The North British Locomotive Co. Ltd. has received an order from the Buenos Ayres Great Southern Railway for five locomotive boilers.

A. C. Bottomley & Co. has received an order from the Indian Stores Department for 3,000 buffer casings at a total price of Rs. 27,578 c.i.f. Karachi.

J. O'Hara Murray & Co. (India) Ltd. has received an order from the Indian Stores Department for 7,000 volute drawsprings at a total price of Rs. 29,313 c.i.f. Karachi.

Parry's Engineering Limited has received an order from the Indian Stores Department for 3,400 spiral bearing springs at a total price of Rs. 15,456 c.i.f. Karachi.

Heatly & Gresham Limited has received an order from the Indian Stores Department for 9,600 steel boiler tubes at a total price of Rs. 39,652 c.i.f. Karachi.

United Water Softeners Limited has received orders from the Buenos Ayres Western Railway for two Zerolit water-softening plants, and from the Buenos Ayres Great Southern Railway, for 18 Zerolit water-softening plants and one caustic dosing plant.

The Mercury Truck & Tractor Co. Ltd. has received an order for three Mercury Model 11A petrol-driven platform trucks with pneumatic tyres.

The Associated Equipment Co. Ltd. has received a repeat order from Pickfords Limited for four oil-engined Matador goods vehicles.

R. Wright & Partners Limited has received an order from the Indian Stores Department for 15,715 steel boiler tubes at a total price of Rs. 48,093, free delivery.

Wagons for South America

The Société Gregg D'Europe, S.A., has received an order for 20 all-steel bogie ballast wagons of 30 tons capacity and with side-discharging doors.

The Krupp Indian Trading Co. Ltd. has received an order from the Indian Stores Department for 8,000 helical side buffer springs at a total price of Rs. 29,500 c.i.f. Karachi.

The Central Wagon Co. Ltd. has received an order from Manchester Collieries Limited for 100 12-ton wagons.

The Bombay Baroda & Central India Railway Administration has placed the following orders to the inspection of Messrs. Rendel, Palmer & Tritton:—

Banting & Tresilian Limited, 4,250 locomotive small tubes, 464 flue tubes and 25 arch tubes.

Wm. Griffiths & Sons Ltd., 160 laminated springs.

Dittmann, Neuhaus & Gabriel Bergenthal, 950 laminated springs.

Glasgow Railway Engineering Co. Ltd., 398 axles for locomotives and tenders.

Fried. Krupp Grusonwerke A.-G., 300 chilled cast-iron wheels.

Bayliss, Jones & Bayliss Limited has received an order from the Central Argentine Railway for 80,000 steel fishbolts, nuts and washers.

Among orders placed in Hungary by Roumania, to be paid for in Roumanian cut fir-wood and railway sleepers, is one for an Arpad railcar.

The South African Railways and Harbours is calling for tenders, to be presented in Johannesburg by September 7, for the supply of quantities of pump trolleys, wheels, and axles. Firms desirous of offering trolleys, &c., of United Kingdom manufacture, can obtain further details from the Department of Overseas Trade.

CHICAGO-DENVER TIME REDUCED.—Both the Union Pacific and the Chicago, Burlington & Quincy Railroads have reduced the time of their streamlined trains between Chicago and Denver from 16 hr. to 15 hr. 50 min. eastbound. By the Burlington route this is equivalent to 65·8 m.p.h. for the 1,039 miles, and by the Union Pacific 66·2 m.p.h. for the 1,048 miles. The C.B.Q. service is being operated by the original Burlington Zephyr and the Mark Twain, both 600 b.h.p. four-car sets, until the new ten-car trains are ready. The Union Pacific 1,200 b.h.p. twelve-car City of Denver trains have been in service since June 18.

LEGAL AND OFFICIAL NOTICES

In the Court of the Railway Rates Tribunal.

Road and Rail Traffic Act, 1933

Section 37

Agreed Charges

PROCEDURE to be followed in Applications for the approval of Agreed Charges lodged from time to time with the Railway Rates Tribunal :—

1.—Applications may be inspected at the Office of the Tribunal, Bush House, Aldwych, London, W.C.2, at any time during office hours, and at the following places :—

LONDON : Railway Clearing House, 123, Seymour Street, N.W.1.

BIRMINGHAM : District Goods Manager's Office, Great Western Railway, Snow Hill.

CARDIFF : Divisional Superintendent's Office, Great Western Railway.

EXETER : Western Divisional Superintendent's Office, Southern Railway.

LEEDS : District Goods Manager's Office, London & North Eastern Railway, Wellington Street.

LEICESTER : District Goods and Passenger Manager's Office, London Midland & Scottish Railway.

MANCHESTER : District Goods Manager's Office, London Midland & Scottish Railway, Hunt's Bank.

SOUTHAMPTON : Southern Divisional Superintendent's Office, Southern Railway, Southampton Central.

YORK : Goods Manager's Office, London & North Eastern Railway.

ABERDEEN : District Goods and Passenger Manager's Office, London Midland & Scottish Railway.

EDINBURGH : District Goods and Passenger Manager's Office, London & North Eastern Railway, Waverley Station.

GLASGOW : Commercial Manager's Office, London Midland & Scottish Railway, Central Station.

A copy of each Application can be obtained from Mr. G. Cole Deacon, Secretary, Rates and Charges Committee, 35, Parliament Street, Westminster, London, S.W.1, price 1s. post free, if applied for within three months after notice of lodgment of the Application.

2.—Public notice of each Application will be given from time to time by advertisement and will state the date on or before which Notices of Objection by any parties entitled to object to the approval of any of the Agreed Charges referred to therein must be filed.

3.—Notices of Objection by any parties entitled to object to the approval of any Agreed Charge must state concisely the grounds of objection and must be filed at the office of the Registrar, on or before the date prescribed in the above-mentioned Public Notice and a copy thereof on or before the same date must be served on or sent by registered post to Mr. G. Cole Deacon, Secretary, Rates and Charges Committee, 35, Parliament Street, Westminster, London, S.W.1. A separate Notice must be filed and served in respect of each Application.

4.—Each Notice must be on foolscap size paper and must be stamped with an adhesive fee stamp for 2s. 6d. (which can be purchased at the office of the Tribunal only.) If sent by post for filing each Notice must be accompanied by a Postal Order for 2s. 6d. payable to the Registrar when a stamp will be affixed at the Office. A Notice by a Representative Body of Traders must contain a statement of the facts upon which such Body claims to represent a substantial number of traders interested in, or likely to be affected by, the decision on the Application.

5.—Five additional copies of each Notice must be lodged with the original at the office of the Registrar.

T. J. D. ATKINSON,
Registrar.

Railway Rates Tribunal,
Bush House,
Aldwych,
London, W.C.2.
27th July, 1936.

The Institute of Transport Exams, 1937

NOTICE IS HEREBY GIVEN that the Graduateship and Associate Membership Examinations will be held in London and at other centres on Thursday, Friday and Saturday, April 29th, 30th and May 1st, 1937.

The latest date for the deposit of forms of entry which can be obtained after October 1st, 1936, is March 1st, 1937 (January 1st if any exemptions are claimed). Full particulars, previous question papers (price 1s. per set, post free) and copies of a revised and enlarged edition of the booklet "The Institute of Transport Examinations : Notes for the Guidance of Candidates unable to attend Preparatory Courses" (price 2s. 6d. post free) may be obtained from the undersigned.

By Order of the Council,
A. WINTER GRAY,
Secretary

15, Savoy Street,
London, W.C.2.
July 14th, 1936.

RAILWAY AND OTHER REPORTS

London & North Eastern Railway.—The directors, after providing for the payment of fixed charges and interest on debenture stocks have declared interim dividends for the past half-year at the following rates : 2 per cent. for the half-year on the 4 per cent. first guaranteed stock ; and 2 per cent. for the half-year on the 4 per cent. second guaranteed stock. The warrants for these dividends will be posted on August 14. Consideration of payment of dividends upon other stocks has been deferred until the accounts for the whole year are available. Compared with the corresponding period of 1935 there is an increase in gross receipts of railway and ancillary businesses and miscellaneous receipts (net) of £819,100, and an estimated increase in expenditure of £806,100, leaving an increase in net receipts of £13,000. In view of the actual and prospective increase in the coal, iron and steel trades, large orders for the provision of suitable freight rolling stock have been placed in excess of the requirements provided for in the programmes of recent years, to which is largely due the increase in the expenditure of the half-year. No credit has been taken in the accounts in respect of the valuation of the company's undertaking for assessment to local rates. Passenger train traffic receipts show an increase of 0·87 per cent., and merchandise and coal traffic receipts an increase of 4·41 per cent.

For the 26 weeks ended June 27 compared with the corresponding period of 1935, the number of passengers originating on the company's system (excluding season tickets) showed an increase of 2,339,000, or 2·71 per cent. ; the total tonnage of merchandise and coal traffic (originating on the company's system or invoiced by the company) showed an increase of 2,630,600, or 5·02 per cent. ; passenger engine mileage increased by 737,500 miles, or 1·96 per cent. ; goods engine mileage increased by 1,656,000, or 4·16 per cent. The additional expenditure in salaries and wages for the six months has amounted to £222,300.

London Midland & Scottish Railway.—For the first half of 1936, compared with that of the previous year, the company's gross receipts from railway working increased by £1,200,000. Against this there was an increase in railway working expenditure of £700,000, making a net improvement of £500,000. Other businesses yielded the same net result as last year, but there was a reduction in miscellaneous net receipts (including interest) of £60,000, making the increase in net revenue £440,000. These figures reflect an increase of £410,000 in the salaries and wages chargeable to the half year's working. Owing to 1936 being a leap year, the results include one additional day's working. The expenditure on rates and rate relief has been charged on the same basis in each period. Traffic receipts since June have continued to show increases over the low levels of the last few years, but the expenditure reflects the rising tendency in prices and additional work necessitated by the additional traffic.

For the year 1935 the full dividend on the 1923 preference stock was paid at the close of the year only, but in the circumstances, the directors have decided to resume full interim payments for the June half year on all the preference stocks and make no interim payment on the ordinary stock. The warrants in respect of these dividends will be posted on August 25.

La Guaira & Caracas Railway.—Receipts for the year 1935 amounted to £44,012, and the working expenses to £43,009. Compared with the figures of 1934 the gross receipts show an increase of £7,496 and the working expenses a decrease of £1,603. After charging debenture interest, &c., there was a loss for the year of £23,242, which increases the debit balance carried forward to £41,296. The quantity of goods traffic hauled in 1935 showed a considerable improvement compared with that of 1934, but was much below the average of the previous 10 years ; the amount earned a ton was slightly less than in 1934. The lorry owners, finding it difficult in view of a recent increase in wages to make a living, brought pressure to bear on the company in December last to raise the rates. After discussion with the Minister of Public Works the company agreed to increase its rates, and a slight advance was accordingly made on January 6 last. A form of road transport regulations has now been prepared for submission to the Venezuelan Congress.

Railway Share Market

Although the stock and share markets have been less active owing to holiday influences, Home Railway stocks were firm, and towards the middle of the week they attracted increased attention and made higher prices. This was attributed mainly to the further good batch of traffic figures, growing hopes of an early settlement of the wages question and the official intimation of the agreement regarding rates provided by the statement issued by the Railway Assessment Authority on Wednesday afternoon.

Whilst the increase in expenses indicated by the half-yearly statements of the L.N.E.R. and Southern railways was somewhat disappointing it was not unexpected. It is generally realised that the larger amounts being expended on replacements are likely to be of considerable assistance in stimulating the upward trend in traffics as time proceeds. Moreover, the figures for the past two weeks have increased expectations that the traffics may continue strongly on the up-grade for the rest of the year.

L.M.S. ordinary was particularly good at 26½ in response to the increased "take" of £76,000 for the past week and the hope that the impending interim statement will make a satisfactory impression. The 4 per cent. preference was also good at 89 as was the 1923 preference at 75. Great Western ordinary was stronger and higher at 51½ on expectations of a small interim payment being announced this week. L.N.E.R. stocks also participated in the favourable tendency, especially in view of the £42,000 rise in the traffic return last week, which has led to wider expectations of a good upward movement in traffics continuing during the next few months owing to the increasing activity in the North-East coast and other centres of the heavy industries. The second preference was better on Wednesday at 25½, it being realised that the possibility of dividends being resumed on this stock for the current year will turn entirely on the nature of traffics during the rest of the year. The first preference moved up to 68½. Southern preferred improved to 92½ and the deferred was better at 21¾, although the past week's traffic gain of £7,000 was considered disappointing. London Transport "C" stock was firmer at 105.

Foreign Railways were less active and lower prices ruled. B.A. Great Southern were out of favour as were B.A. Western and Central Argentine, Cordoba Central first debentures declined sharply to 32½. San Paulo improved, but Antofagasta made a lower price. Canadian Pacific issues were better and American railroad stocks benefited from the stronger tendency of New York markets.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1935-36	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1935	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1935	Prices: Lowest 1935	Prices: July 29, 1936	Yield † (See Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	834	26.7.36	11,680	– 1,720	30	404,080	372,570	+ 31,510	Ord. Stk.	23	14 15/16	17	Nil
	Argentine North Eastern ..	753	25.7.36	9,186	+ 1,448	4	31,858	30,762	+ 1,096	,,	7	4	3½	Nil
	Argentine Transandine ..	—	—	—	—	—	—	—	—	A. Deb.	49½	30	47½	8 7/16
	Bolivar	174	June, 1936	6,200	+ 200	26	41,000	39,400	+ 1,600	6 p.c. Deb.	13	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	14	11	17½	3½
	Buenos Ayres & Pacific ..	2,806	25.7.36	73,361	+ 1,387	4	265,149	289,112	– 23,963	Ord. Stk.	101½	47⅛	8	Nil
	Buenos Ayres Central ..	190	12.7.36	$106,100	– $7,600	2	$221,500	$246,400	– $24,900	Mt. Deb.	21	10	16½	Nil
	Buenos Ayres Gt. Southern	5,084	25.7.36	101,288	– 14,106	4	377,905	444,541	– 66,636	Ord. Stk.	27	13½	16	Nil
	Buenos Ayres Western ..	1,930	25.7.36	36,885	+ 3,277	4	136,428	149,317	– 12,889	,,	24	10	12½	Nil
	Central Argentine	3,700	25.7.36	126,701	+ 5,608	4	445,834	488,473	– 42,639	,,	17⅞	7	10½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	9	3¼	6½	Nil
	Cent. Uruguay of M. Video	273	18.7.36	10,400	+ 1,791	3	27,278	24,391	+ 2,887	Ord. Stk.	8½	3	4	Nil
	Do. Eastern Extn.	311	18.7.36	1,904	+ 178	3	4,794	4,930	– 136	—	—	—	—	—
	Do. Northern Extn.	185	18.7.36	1,548	+ 55	3	4,078	3,830	+ 248	—	—	—	—	—
	Do. Western Extn...	211	18.7.36	989	+ 301	3	2,508	1,743	+ 765	—	—	—	—	—
	Cordoba Central	1,218	25.7.36	37,766	+ 4,800	4	132,860	136,630	+ 3,770	Ord. Inc.	4	1	1½	Nil
	Costa Rica	188	May, 1936	17,449	+ 3,582	48	159,922	176,238	– 16,316	Stk.	35	30	33§	6 1/16
	Dorada	70	June, 1936	13,600	+ 1,800	26	79,300	66,800	+ 12,500	1 Mt. Db.	103⅝	102½	104½	5¾
	Entre Rios	810	25.7.36	12,477	+ 767	4	42,188	45,029	– 2,841	Ord. Stk.	15	6½	7	Nil
	Great Western of Brazil ..	1,082	25.7.36	6,500	+ 1,100	30	228,900	232,500	– 3,600	Ord. Sh.	1/2	5/16	1/2	Nil
	International of Cl. Amer.	794	May, 1936	$536,930	+ $39,880	21	$2,617,600	$2,260,638	+ $356,962	—	—	—	—	—
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	1st Pref.	1/2	5/32	1/2	Nil
	La Guaira & Caracas ..	22¾	June, 1936	4,460	+ 545	26	27,340	23,845	+ 3,495	Stk.	8½	8	5½	Nil
	Leopoldina	1,918	25.7.36	22,437	– 73	30	521,370	480,755	+ 40,615	Ord. Stk.	8½	2½	4½	Nil
	Mexican	483	21.7.36	$218,000	– $19,000	3	$659,000	$728,300	– $69,300	,,	1½	1/4	5/4	Nil
	Midland of Uruguay ..	319	June, 1936	7,548	+ 1,791	52	86,428	111,833	– 25,405	,,	1½	1½	1½	Nil
	Nitrate	401	15.7.36	6,495	– 1,986	28	76,055	80,994	– 4,939	Ord. Sh.	64/–	42/–	2 9/16	Nil
	Paraguay Central	274	18.7.36	$2,590,000	+ $524,900	3	$6,821,000	$6,229,000	+ $592,000	Pr. Li. Stk.	80½	60	73½	8 5/16
	Peruvian Corporation ..	1,059	June, 1936	83,124	+ 16,368	52	949,493	764,032	+ 185,461	Pref.	10⅝	6 7/16	10½	Nil
	Salvador	100	18.7.36	¢13,600	+ ¢956	3	¢30,043	¢36,288	– ¢6,245	Pr. Li.Db.	65	61	30	16 11/16
	San Paulo	153¼	19.7.36	29,190	+ 3,375	29	855,129	688,910	+ 166,219	Ord. Stk.	80	35	49½	5 1/16
	Taltal	164	June, 1936	4,220	+ 1,345	52	42,725	36,940	+ 5,785	Ord. Sh.	11 1/16	1 1/8	7/8	11 7/16
	United of Havana	1,353	25.7.36	17,002	– 604	4	58,707	75,272	– 16,565	Ord. Stk.	3 1/16	1	2½	Nil
	Uruguay Northern	73	June, 1936	778	+ 154	52	9,922	12,107	– 2,185	Deb. Stk.	4½	2 15/16	4½	Nil
Canada.	Canadian National	23,615	21.7.36	678,221	+ 3,493	29	19,115,584	17,978,982	+ 1,136,602	—	—	—	—	—
	Canadian Northern ..	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	78⅝	52½	66½	6
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	103⅝	93	101½	3 15/16
	Canadian Pacific	17,237	21.7.36	492,200	+ 6,600	29	13,947,800	12,764,800	+ 1,183,000	Ord. Stk.	14 1/16	8⅝	13	Nil
India.†	Assam Bengal	1,329	30.6.36	35,527	+ 3,006	13	310,557	296,367	+ 14,190	Ord. Stk.	92⅛	77½	84½	3 9/16
	Barsi Light	202	30.6.36	6,967	+ 3,540	13	34,792	34 282	+ 510	Ord. Sh.	10⅝	7 7/16	7 2½	6 7/8
	Bengal & North Western ..	2,112	10.7.36	71,425	+ 7,869	14	800,432	768,585	+ 31,847	Ord. Stk.	30 11/16	29 1/4	30⅜	5 5/16
	Bengal Dooars & Extension	161	30.6.36	3,451	– 389	13	29,042	29,779	– 737	,,	12 7½	12 2	12 5½	5 9/16
	Bengal-Nagpur	3,268	10.7.36	150,075	– 8,253	14	1,762,052	1,863,050	– 100,998	,,	10⅝	100 5/16	102½	3⅞
	Bombay, Baroda & Cl. India	3,072	20.7.36	189,000	+ 17,925	16	2,728,800	2,551,300	+ 177,300	,,	11 5/4	11 0	11 1½	5⅞
	Madras & Southern Mahratta	3,229	10.7.36	157,500	+ 10,101	14	1,659,116	1,623,270	+ 35,846	,,	12 8½	11 3⅞	11 2½	8
	Rohilkund & Kumaon ..	561	10.7.36	11,271	– 802	14	165,947	153,078	+ 12,869	,,	29⅝	26 2	30 6½	5 5/16
	South India	2,531	30.6.36	106,139	– 2,826	13	1,031,016	1,053,764	– 22,748	,,	11 9⅝	10 4¼	10 3½	5 5/16
Various.	Beira-Umtali	204	May, 1936	70,177	+ 124	35	513,150	520,214	– 7,064	—	—	—	—	—
	Bilbao River & Cantabrian	15	June, 1936	1,397	+ 136	26	8,525	9,905	– 1,380	—	—	—	—	—
	Egyptian Delta	620	10.7.36	6,309	+ 421	14	57,476	52,514	+ 4,962	Prf. Sh.	2	1⅝	1¾	5 11/16
	Great Southern of Spain ..	104	11.7.36	857	– 66	28	30,378	50,610	– 20,232	Inc. Deb.	3½	2	3½	Nil
	Kenya & Uganda	1,625	June, 1936	204,162	+ 40,600	26	1,430,672	1,293,183	+ 137,489	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	48	36	41½	8 7/16
	Mashonaland	913	May, 1936	105,936	– 19,948	35	815,155	945,921	– 130,766	1 Mg. Db.	104¼	100	103½	4 15/16
	Midland of W. Australia ..	277	May, 1936	11,949	– 1,099	48	149,410	147,835	+ 1,575	Inc. Deb.	98⅝	93	95½	4 5/16
	Nigerian	1,905	6.6.36	27,791	+ 7,249	10	302,948	263,607	+ 39,341	—	—	—	—	—
	Rhodesia	1,538	May, 1936	182,817	– 15,586	35	1,479,847	1,542,173	– 62,326	4 p.c. Db.	105½	101	105½	3 15/16
	South African	13,263	4.7.36	645,401	+ 69,081	14	7,990,569	7,384,331	+ 606,238	—	—	—	—	—
	Victoria	4,728	Dec., 1935	866,995	– 3 320	26	4,826 292	4,751,974	+ 74,318	—	—	—	—	—
	Zafra & Huelva	112	May, 1936	8,821	– 2,027	22	48,574	55,398	– 6,823	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador and Paraguay Central receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rates of exchange and not on the par value.